AMERICAN AGRICULTURIST

FOR THE

FARM · GARDEN · & · HOUSEHOLD

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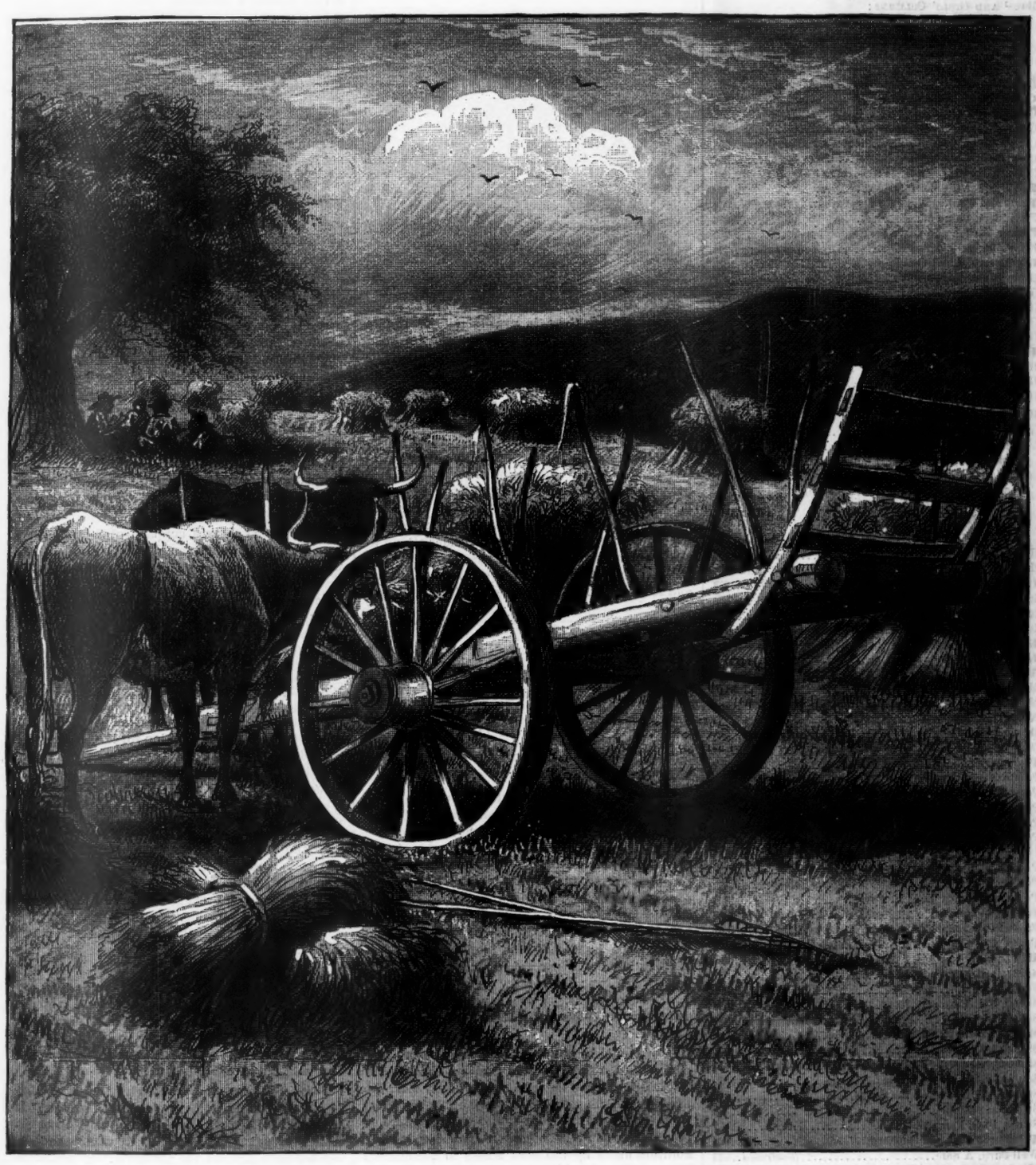

THE NOON-DAY REPAST.—(*See page 355.*)

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See page 381 and onward for other valuable articles not included in this Index, Sundry Humbugs, etc., etc., etc.

September.

Thou art bearing hence thy roses
Glad summer fare thee well!
Thou art singing thy last melodies
In every wood and dell.

MRS. HEMANS.

FARM AND GARDEN WORK FOR

ROCK ROLL.

SEPTEMBER.

In September there is usually a brief respite from the pressure of hard work and jobs crowding one upon another as in early and late harvest. The farmer who is only a little beforehand can easily make time to attend the county cattle-show and fair, and take some of his products, as well as his family. He can do nothing more useful. There may be a good deal of work to do, but that can be largely left to the hired men, if they take an interest in the work. The overhauling and composting of the manure, plowing and harrowing preparatory to sowing wheat, cutting up corn, and many kinds of work of like character may be safely left to good men, who will besides attend to the general routine work and care for cattle and sheep. The farm will not run away if the master and mistress do take a play spell for a few days.

All readers turn immediately to p. 388 for matters of special interest.

Winter Wheat.—If sown early, on well prepared land, less seed will be needed. After wheat ground is plowed, whether a clover sod be turned under, or a summer fallow is to be used, or wheat is to follow a spring grain or even corn, thorough harrowing is essential that the seed may find a good, mellow seed bed. To prevent smut, wet the seed wheat thoroughly with one quart of water to the bushel, if new wheat, and three pints if old, in which three ounces of blue vitriol is dissolved. It will not make it very wet, and the heap should be shoveled over twice after you think the work has been well done. When sowed, roll and draw water furrows to prevent heavy rains from washing the field.

Corn should be cut up and stocked before nipping frosts, which greatly damage the fodder. These occur or are liable to occur shortly after the fifteenth of September throughout the great northern corn belt. We prefer cutting close to the ground, and it is best where farmers value the addition made by the corn stalks to the manure heap, as they should.

Fodder Corn should stand until there is danger from frost, and then be cut. It will pay to work even into the night to cut the crop, even though it be left upon the ground, for it will not be hurt by a hard frost if severed from its roots. We are liable to have very murky, hot weather just before frost, and such weather is liable to mildew the fodder if cut and stocked up, while it will cure perfectly after the cool nights come.

Ensilage.—When corn fodder is pitted or ensiloed with sufficient care, and the use of the thermometer, and that put in one day which ought to be somewhat wilted, is allowed to get up a good heat—125 to 130 degrees—before more is added, anyone may have sweet ensilage; and with this, good milk, well-flavored butter and healthy calves. All the trouble is with sour ensilage; which, however, is good for steers and store cattle.

Clover Seed.—Save your own if you can, and if it is fairly free from weed seeds, such as wild carrots.

Grass Seed.—Sow with grain in the autumn. You will get a much better catch.

Weeds may be fought by the plow, the scythe and the bon-fire. Those that have matured seed should be gathered in wet weather, so that the seed will not shell, and put in heaps to burn.

Live Stock Notes.

As soon as the weather becomes cool, all kinds of stock begin to "pick up" and lay on flesh. Fattening stock should pushed forward.

Sheep on good pasture gain rapidly. Ewes, to bring early lambs, should run with the ram. Their period is about 150 days. Drouths and short pasturage in some sections always make store sheep plentiful in the markets and low in price; good opportunity is thus offered to buy; good breeding ewes are thus often picked up, as well as such as will fatten well, turn the straw stacks into good manure and sell well in the spring.

Swine.—The best breeds of pigs may be fattened at a profit, when common, coarse breeds net a loss, or no profit. For store pigs always use good grades. Yorkshire or Essex or Berkshire, Poland-China or Cheshire are crosses that will, without exaggeration, save one-third the feed.

Cows on good pasture, supplemented by a feed of corn and oatmeal and bran, will keep up their flow well into the winter, and as good butter may be made in September and October as in June. Winter cows should be dried off two months, and when dry kept gaining in flesh—it will all come back in milk and butter. A few days before calving, reduce feed, give loosening diet, or physic—not enough to weaken—to avoid tendency to fever at calving time.

Young Cattle should come to the winter in first-rate order. The years they are coming one and two years old settle their condition for life. They will be undersized and inferior, or well-grown and fine, and the autumn is the time when the best growth is made.

Orchard and Fruit Garden.

If the plantations, whether of orchard trees or fruit garden, are to be extended, the soil should be prepared this fall by spreading a liberal covering of manure, and turning it under as deep as possible. Another good plowing at the time of setting the trees, etc. next spring, will bring the soil into excellent condition, and the future success of the trees and fruit plants, will be well assured.

Picking and Packing.—The second early apples and pears are mature. Assort carefully and pack in crates or half barrels. These fruits ripen up rapidly, and should be so hard when gathered that they will not soften in transit.

Peaches.—Those who have orchards just coming in, will find it difficult to get suitable pickers. If the peach be picked too soon, it will shrivel and not ripen. If picked too late, it will mellow and decay before it reaches the consumer. If picked in the right condition, it will "come into eating," coloring finely, and becoming mellow at the end of five or six days. An experienced picker can tell by the looks of a peach, when it should be picked; others must rely upon the peach-growers' rules: If pressed between the thumb and first and second

fingers (the balls of these, not the nails), and it *yields* to the pressure, it may be picked; if it does not, it is too green. If it is *indented* by this pressure, it is already too ripe for distant transportation. The baskets and crates should be ready well beforehand, and plainly marked with the name of both consignee and shipper.

Cider.—The best cider is made in cool weather from late apples, but cider that will make good vinegar—and this is the most profitable use for all inferior fruit and windfalls—can be made at any time. A hand-mill and press may be profitably employed in converting all fruit of this kind into cider, which can be made into vinegar of good quality.

Drying or Evaporating.—The improved method of drying fruit by artificial heat, while excluded from light and insects, gives a superior product that will sell enough higher than the common sun-dried fruit to warrant those who have large orchards to look into the merits of the various evaporators or dryers now offered for sale.

Young Trees.—Prune out all useless wood from young trees, and bring their heads into proper shape.

Budding is in season whenever matured buds may be had, and the stock is in proper condition; that is, the bark parts readily from the wood. Peach trees are largely budded this month; also, the pear upon quince stocks; the time depending upon the locality.

Grapes.—In gathering, avoid handling the fruit, as its beauty depends upon the bloom. Scissors which will cut the stem and hold the cluster are most useful. Grapes to be packed in boxes, should be laid upon shallow trays in a cool room for a few days, until the skin becomes toughened. Pack, by removing the bottom of the box, which, after the box is full, is nailed in place, with a little pressure.

Kitchen and Market Garden.

As soon as a crop is removed, do not let the ground grow up to weeds, but occupy it with some useful plant. Strap-leaved turnips, on good soil, will make a crop in ninety days, and are excellent for feeding to stock, and for marketing. Rather than leave it unoccupied, sow it to rye to be cut for the cows next spring and then to be turned under as a manure.

Root Crops.—Continue to hoe all those that are still young until the leaves prevent.

Sweet Corn.—Where there is an abundance, dry a supply for winter use, boiling before cutting it from the cobs. Save only the largest and earliest ears for seed. Cut up the stalks as soon as the ears are gathered and cure for winter fodder.

Celery.—Hoe frequently to keep clear of weeds, and encourage growth, which will be most rapid in this month of cool nights and warm days.

Cabbages and Cauliflowers are greatly helped by frequent hoeing. If backward, give a sprinkling of guano at hoeing.

Cucumbers.—Gather for pickles at least every other day, and daily if the patch is large and the growth rapid. Always cut with the stem attached. If any have grown too large, cut them away, unless seed is wanted.

Sweet Potatoes.—The ridges may be opened, the large roots carefully removed, and the rest left to grow. If the vines take root at the joints, move them, at least in Northern localities.

Melons.—Remove all fruits that set too late to ripen. Turn occasionally as they approach maturity.

Spinach, for use next spring should be sown this month, in rows fifteen inches apart. We have found one variety to be as hardy as another.

Tomatoes.—Search for and destroy the large green "worm" that devours both leaves and fruit. Cut away the clusters that set so late that they will not mature or get large enough for pickles. Make catsup while the fruit is still abundant, and at its best.

Plants for Next Spring.—The early cabbages, cauliflowers and lettuce seen in the markets, are from plants which were wintered in cold frames and set out in early spring. The seeds are sown in the open ground this month, and in November the plants are pricked out into cold frames, where they are kept in a dormant state until spring. The plants for wintering should be neither too young nor too far advanced. In the first case they will not be strong enough to endure the winter, and in the other case they will be too large. With his extended experience near New York City, Peter Henderson finds it best to make two sowings—one on the 12th and another on the 16th of September—and from one or the other sowing has plants suitable for the frames.

Flower Garden and Lawn.

Cool nights will now encourage the growth of grass, and the mowing may be more frequent than in the hot months. If there are thin places in the lawn, scarify them with a sharp rake, sow an abundance of seed, and roll, or beat down with the spade.

Dahlias, whether single or double, need an abundance of stakes to support the heavy lower branches as well as the main stalks. Look out for grasshoppers, which will often destroy the buds. Cut away the remains, when the blooms are past their prime.

Chrysanthemums.—Pot for house-blooming as soon as the buds are well set and developed, placing them in the shade until they recover from the removal. When well established, give them very weak manure water, or water in which guano has been dissolved, a teaspoonful to a gallon. Keep from the potted plants and those left to bloom in the ground, the black-fly, by the use of tobacco water, and hand-pick the caterpillars that are so fond of the leaves.

Violets.—If needed for early spring blooming, prepare for them now. Set a frame on very rich soil, and fill it with healthy young plants, struck from runners. When freezing weather comes, cover the plants with leaves, and put on the sashes.

Hardy Plants.—Those that have finished flowering, may be divided and reset.

Leaves.—By gathering up the leaves that fall upon the lawn, the paths, and the roads, a supply of this most useful material may be accumulated without special effort. A gardener can never have too many dried leaves.

Greenhouse and Window Plants.

If plants that have been set in the open ground are to be taken up for house blooming, the earlier it is done, the better. If roots and tops are too large, cut them back severely, and shade until they recover from the shock of the removal.

Bulbs.—As soon as hyacinths and other "Dutch bulbs" can be had from the dealers, pot them in soil made open and porous by adding sand, and set the pots in a dark cellar.

Plants for the Window.—Procure them early; see suggestions on page 374.

Hanging Baskets greatly enhance the attractiveness of the window garden. Fill them early that the plants may become established. Ivy is the best vine to twine around the handles, and to train around the basket.

Sow Seeds of such annuals as may be wanted for winter flowering.

Supplies.—Potting soil, well rotted cow manure, sand, pots, moss, etc., will be needed during the winter. Procure and store in the cellar, or in an out-building in boxes or barrels.

Bees in September.

In localities where the autumn flowers, Asters and Golden-rods, *Solidago*, are abundant, the harvest of honey will be little below that of the most abundant months, while the quality falls little short of the best. It is not regarded advisable to put on boxes so late in the season, but the late yield should be extracted from the frames as fast as it is gathered....Boxes that are only partly filled should be removed, the comb taken from them, uncapped, and laid upon the top of the frames, where the bees can empty them. All empty combs to be kept for extracting next year, should be placed in a box or room where they may be thoroughly subjected to the fumes of burning sulphur to destroy the worm of the bee moth. The careful apiarist will begin his preparations for wintering his bees thus early. The first step should be to see that each stock is strong, and that the bees have sufficient honey. If the bees' honey and comb do not together weigh thirty pounds, the bees must be fed. Good honey, if it can be spared, is best for feeding; and next to this, thick syrup, made from the best granulated sugar....In packing honey for market, observe the utmost neatness as to cases and everything used in its preparation. Attention to details, and attractive appearance, will be repaid in rapid sales.

The Noon-Day Repast.

The western wheat farmer, who has hundreds of acres in wheat, will see very little in the fine engraving on the first page that reminds him of his own harvest. Our artist made the sketch in a Vermont wheat field, and it illustrates the difference between wheat farming at the West, where this grain is the great money crop, and in some remote portions of New England, where, if the wheat is grown at all, it is only in sufficient quantities to furnish the family bread, or at most to meet the demands of the neighborhood. The field, being often on steep slopes, the reaper cannot be brought into general use; hence the cutting is done with the slower and more laborious cradle, and instead of the automatic binder to fasten the sheaves, this, like all the rest of the work, is performed by hand. After the heavy work in the field, "nooning" is welcome to both men and animals, and their quiet enjoyment of the repast lends a restful aspect to the landscape. The cart, or hay-rig, for it is used for both hay and grain, will be regarded as a most primitive affair, but it is a very useful one where short turns must be made. And not the least of its claims is, it is home-made, all save the wheels, and costs little save the labor of building it, as except the tires, the iron at the end of the tongue, and one or two other pieces, no metal is used in the entire vehicle, strong, wooden pins replacing bolts. Carts like this are only now and then met with on our northernmost farms, but they are very common over the border among the settlers in the Canadian provinces and in far away Manitoba. Their great strength and comparative lightness adapt them to use on roads which would soon make a wreck of a more stylish-looking vehicle.

Late Chickens and Turkeys.

Late hatched young turkeys thrive better for a few days than those that come out early, and the same may be said of chicks; but in a short time they begin to droop without apparent cause, and the farmer's wife considers herself lucky if she raises one-half of the chicks, or one-fourth the young turkeys. The principal cause of their loss is lice. As these are very small, they may not be seen at first, and in a few days' time they will multiply so rapidly, as to number among the millions. A close examination every day should be made, and upon the first signs of debility, whether vermin are present or not, begin heroic treatment.

Grease should never be used on the bodies of fowls or chicks. It will kill young turkeys in a short time. It may be used carefully on the heads and around the vent, but on no other portion of the body. There is no remedy against lice, so long as the coops or houses remain unclean. Hence the first thing to do is to thoroughly clean, and then whitewash the walls, ceilings, and even the floor. This is best done by making a bucket of thin whitewash, adding a teaspoonful of carbolic acid to each bucket made, and with a watering pot sprinkle it freely, in order that it may run into all the cracks and crevices, pouring it also on the floor. Then follow with thick whitewash, and lay it on plentifully with a brush. Before beginning to whitewash, remove all filth. Saturate roosts

with coal-oil, and in the nests place tobacco refuse. Then dust Buhach or Persian insect powder everywhere in the house and nests, and blow it freely among the feathers of the adults and young ones. This may seem like performing quite an amount of labor, but it is necessary, and should be repeated weekly. Vermin must be kept out of the houses and coops, and off the young turkeys and chicks, or they will perish.

When fowls are confined to yards, these must be cleaned and spaded, and a clean, dry dust-bath should always be kept convenient, as by its use they keep themselves free of vermin, if the houses and coops are clean. The liberal use of insect powder will be effectual, if once the lice are driven away.

Sheep Pasture in the West.

THOMAS STEPHEN POWERS.

The grasses of the East, both wild and cultivated, generally form an unbroken turf; but those of the remote West seem to protect themselves against the great aridity of the climate by growing in bunches or tufts, with the spaces between either naked, or overgrown with weeds. Hence the popular name, "Bunch-grass," which is extremely indefinite, describing nothing except the habit of growth, and applied to several different species. The grasses of the great arid region are scanty, but are mostly sweet and nutritious, both for summer and winter grazing. A considerable part of their value arises from their greater richness in seed than the Eastern grasses. The winter aridity is so great, generally, and the stems of the grasses so stiff and strong that, when touched by frost, they do not become broken down by the rains and snows to decay on the moist soil, but stand firmly on the ground all winter long and "cure," forming a sort of uncut hay.

To a considerable degree, the greater or less abundance of the grasses is dependent on latitude and altitude; the higher the latitude, the better are the grasses, and they improve as the altitude increases. In the mid-continental region, in low altitudes and latitudes, the grasses are so scanty as to be of little or no value; here the true deserts occur. Also, on the Atlantic slope of the Rocky Mountains (especially the eastern part of it) and on the Pacific coast, the grasses are coarser than those of the great central basin. In the prairie section proper, the native grasses are coarse and rough; they have to be kept closely pastured, or they become unpalatable to sheep. They form a very fair article of hay, often scarcely inferior to Eastern hay; but the leaves are so harsh that they frequently give sore mouths to the sheep. These grasses are also rather susceptible to frost; in the latitude of Southern Kansas they are generally cut off by November 1, thereafter becoming "dry feed."

On the Pacific Coast, several of the more important grasses are noted for their rankness of growth and their prolificacy in seeds, these constituting a large share of their value. Furthermore, being annuals, they depend on their seeds for propagation, and the consumption of these by sheep curtails their volume from year to year.

The finer and sweeter perennial grasses, which are more characteristic of the central continental region are better suited for sheep, though the available pasturage areas are much lessened by low alkali and sandy deserts, on the one hand, and by rocky, broken mountain chains, on the other.

FALL CARE OF SHEEP.—All the flocks, especially the lambs and the breeding ewes, should be vigilantly watched at this time of the year. As soon as heavy frosts begin to fall, the sheep ought to be housed at night, and not turned out in the morning until the frost disappears, as they will frequently wander around an hour or more, doing themselves no good and the pasture much damage. Whenever they touch a frosty clover-leaf or other tender herbage, it is ruined, whereas if it had been allowed to thaw out untouched, it would have been uninjured.

Raising Capons.

It is not intended at this time to describe the mode of caponizing, as that has been done previously; but as instruments for the purpose are now made that greatly simplify the operation, no doubt the opportunities for raising capons have been largely increased. The mistakes made by some who have endeavored to make capons an object for market, are numerous, the greatest fault being the supposition that all kinds of cockerels would answer the purpose.

A capon should be as large as possible. It is considered second only to the turkey, and size not only adds to the profit through extra weight, but also increases the price per pound. The poultryman who desires to caponize, should use special breeds for his purpose. Crosses give the best results, the superior capons being produced by mating Dorking cocks with Brahma or Cochin hens, which secures not only the size pertaining to the Asiatics, but also the close, compact body of the Dorking. If the pullets of this cross are retained, and then mated with a large, pit game-cock, the capons so procuced will possess all the excellent qualities of Game (really the best table fowl), with the size of the first cross. A capon of this kind has no superior by any other cross.

Among the other valuable crosses, is that of crossing the Brahma and Cochin together, a Houdan with Asiatic hens, and the Plymouth Rock with crosses of the Houdan and Brahma. Avoid fowls with large combs, as a capon should have as small a comb as possible. The Brahma crosses show to best advantage, as the combs are small and low. Such birds as Leghorns, Black Spanish and Hamburghs, are useless as capons. The object should be to attain large size, compact form, small combs, as much breast meat as possible, and fat condition. If these qualities are bred in the capons, the price secured will be much larger than when cockerels are used without regard to their breeding. Good breeds and crosses are essential adjuncts to quality in capons, and to realize the highest prices.

Harvesting Roots.

The harvesting of roots should not be delayed too long; more especially for the tenderer mangels and beets. These cannot be roughly handled but should be gathered carefully. A good way is for a man to pass between two rows; (1, 1, in the

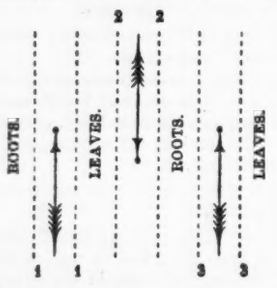


diagram); pull the roots, and with a knife carried in the right hand, cut off the leaves, dropping the roots in the space to the left, and the leaves in the space to his right. When he has reached the end of the rows, he misses a space, and passes down the next but one (2, 2), throwing the roots to his left, and the leaves to his right as before. In this way, four rows of roots are gathered together in one space, and four rows of leaves in another, and so on alternately. It is very easy then to go along the rows with a wagon or cart, and gather the roots first, and then take up the leaves, which should be pitted (ensiloed really), for later use. An excellent way to take up the roots is with a wide fork. The dotted lines in the diagram given above stand for the rows of roots, and the arrows indicate the spaces.

Look out for Seed Corn Now.

It is no exaggeration to say that millions of dollars are lost every year from planting seed corn that will not grow. We tested a number of samples last spring, of corn of our own growing and from some of the best farmers in the neighborhood, and did not find one that was uniformly good. Some of the ears from the outside of the crib would be good, but those from the inside would be poor. Farmers would say, "I know good seed corn when I see it, and will warrant this to grow;" but on testing it, more than half the kernels would not germinate.

The trouble is not due so much to immaturity, as to the careless method of gathering and keeping the corn. If the corn is thoroughly dry when put in the crib, and afterwards kept dry, the chances are that it will prove good. The growers of seed sweet-corn, the late varieties of which are exceedingly difficult to cure properly, build narrow racks on which the ears are spread out for several days or weeks. There is a general impression that corn for seed should be left growing till it is thoroughly matured. This is a mistake. Practically, it is far safer to cut corn for seed very early and let it ripen in the shock, than to run the risk of having it nipped by an early frost, or of having the curing delayed by the shorter days and damp weather of the late season. The first point is to get the corn thoroughly dry before putting in the crib. And then the crib should be very narrow and with open slats at bottom and sides and a good wide roof, to keep off driving rains. If all these conditions cannot be secured, the only way we can be sure of good seed corn is to select the best ears and leave the husks attached to the buts and tie them up in traces and hang the traces in an airy barn or room for the winter. The few farmers who had such corn last spring, could get their own price for it.

The Value of Fertilizers.

Many farmers look with distrust on the chemists' estimate of the money value of a fertilizer, and we observe that some agricultural papers, instead of trying to present clear views on the subject, are inclined to throw out surmises and objections and hints, calculated to increase this want of confidence. This is wrong. The farmers who get cheated are seldom those who place the most reliance on the chemists, but rather those who "don't care a continental for your analysis."

It is said that our chemists and experiment stations do not take into consideration the cost of freight, or the cost of application. Why should they? The intelligent farmer is quite capable of determining this question for himself. Here are two fertilizers, one of which, made by Smith, contains twice as much phosphoric acid, and twice as much potash, and twice as much nitrogen as the other, made by Jones, and if the degree of availability is the same in both fertilizers, the chemist reports that Jones' fertilizer is worth twenty dollars per ton, and Smith's forty dollars per ton. He has nothing to do with the cost of freight. Of course, we can all see that two tons of Jones' fertilizer are worth no more than one ton of Smith's, and if we pay two dollars per ton freight, forty dollars worth of Jones' fertilizer would cost us forty-four dollars, while the same actual value in Smith's fertilizers, would cost us forty-two dollars. But as a rule, Jones pays the freight upon his fertilizer, and if there is any loss in the transaction, it is his lookout, and not ours.

If farmers pay their own freight, they are quite capable of understanding the matter. If they are asked twenty-two dollars for a ton of Jones' fertilizer, and they see that the chemist estimates its value at twenty dollars, while they can buy half a ton of Smith's, worth just the same, for twenty-one dollars, they may take Smith's, or they may not. At any rate, the chemist has done his duty, and he is in no way to blame. The only safeguard we have against fraud in fertilizers, is constant chemical examination, and it is not wise to cast suspicion on the accuracy of the analyses.

SEPTEMBER.
There is a beautiful spirit breathing now
Its mellow richness on the clustered trees,
And, from a beaker full of richest dyes,
Pouring new glory on the autumn woods.
And dipping in warm light the pillared clouds.
Paul G. Mueller.
Am. Agr.
Morn on the mountain, like a summer bird,
Lifts up her purple wing, and in the vales
The gentle WIND, a sweet and passionate wooer,
Kisses the blushing leaf, and stirs up life
Within the solemn woods . . . . . .
. . . . . Longfellow.

Care of Corn Fodder.

The farmers of this country waste enough feed each year to winter as many animals as they keep; that is, by saving all food and feeding it judiciously, they could double their flocks and herds. The greatest waste is perhaps in the matter of corn fodder. A ton of good corn fodder is equal in practical feeding value to two-thirds of a ton of equally good timothy hay. Our annual area in corn exceeds 60,000,000 acres. If this yielded one ton of fodder per acre, the fodder crop would be equivalent to 40,000,000 tons of hay, worth at least $400,000,000. It is safe to say, that two-thirds of this is wasted. In the great corn producing States but little fodder is cut. After the ears are gathered, generally not until late into the winter, the stalks are pastured by cattle. This is the common expression and it is a correct one, for very little besides the stalks remains. The most palatable and nutritious parts of the fodder, the blades and the stalk down to the tassel joint, are rotting on the ground; all that remains for the cattle is the dry husk and coarse stalk, neither of which is palatable or highly nutritious. It may be neither wise nor practicable to cut all the corn raised. We do not care to argue this point. But we are sure that enough fodder should be cut to give farm stock abundant rations during the winter. So long as animals weigh but little more in the spring than they did in the previous fall, and when their fat is certainly less, the saving of more fodder than is at present secured cannot be too strongly urged.

Corn for fodder is best cut early. If fodder were the first consideration, the proper time to cut the corn would be before the ears were fully matured. But as the ears are the most valuable, cut the fodder immediately after they have matured. Do not wait to gather the ears; they can be husked out on the barn floor during the cold days of winter. Certainly the fodder should be cut before any part of it is lost; and the most valuable part, the blades, is the first to be lost. In the West, shocks are commonly made too large—sixteen hills square. From eight to twelve hills square is better. The area cut over to form a shock should be just so large that the cutter can begin at the shock, cut to the outside and back again, holding all he has cut conveniently in his arm; or else cut from one shock to another, carrying one row of corn along with him. In the latter case, a row of shocks is begun across the field, and the workman cuts back and forth along the row. This is the fastest way. The best standard is made by bending four hills together—two diagonal hills being lapped and twisted together. But to such a standard it can be objected, that a knife must be carried along to cut the stalks loose when the fodder is brought in from the field, and that these stalks can not be stood straight in the rick. Some prefer a movable wooden standard, of which a very good sort is shown in figure 1. A light pole, twelve or fifteen feet long, is provided with two upright supports;

Fig. 1.—FODDER CORN STANDARD.

holes are bored through the pole about five feet from one end and through the ends of the uprights, and a bolt passed through the holes and secured by a nut. The holes should be so large that the uprights can be spread a foot apart at the bottom. Midway between the uprights and the end of the pole, another hole is bored, through which a cross-bar is put. In the four angles formed by the intersection of the pole and cross-bar, the fodder is set. When the shock reaches out to the supports, the cross-bar is pulled out, and the pole can be removed. Some prefer to have the supports and cross-bar near together, about four feet from the pole. The shock is built around the supports. When done, the cross-bar is pulled out, and as the pole is removed, the supports are brought close together and do not hinder.

When properly managed, nothing makes a better tie for a shock than stalks. They are much less troublesome than straw or hay, and give a shock all necessary stability. Stalks altogether dry or altogether green are not to be selected, as they will break when it is attempted to twist them. Long, slender stalks are desirable. The first stalk is broken at a right angle about two feet from the but; the but is then forced into the shock as far as the break, when the remainder of the stalk is passed around the shock, breaking it carefully every eight or ten inches, until the tassel point is

Fig. 2.—CORN-STALK BAND.

almost reached. Then another stalk is inserted in the shock. The top of the first stalk is broken every three inches between the thumb and fingers, and twisted around the second stalk, which is then broken and passed around the shock as in the case of the first one. This is continued until the last stalk reaches the first one, when it is secured by twisting it, as in the case of the others, or by drawing it down between the shock and the first stalk, just in front of the break, forming a loop below through which a piece of stalk, two feet long, is passed and driven into the shock. In figure 2 is shown the appearance of the band, if the shock could be removed after the band is completed.

The Mosquito Pest.

The mosquito is a well-known member of the *Culex*, or gnat genus. He pervades the earth as the atmosphere surrounds it, and is quite as ferocious in the Arctic regions as in the tropics. He is perhaps best known and more universally troublesome in North America than in any other part of the globe, and "the small horror of his bugle horn" makes day and night, particularly the night, resonant in all parts of the land. The Jersey mosquito is celebrated in song and story, but his rapacity and ferocity are as nought when compared with his congeners of Alaska. The mosquito, although chiefly prevalent in the warm weather, has, in reality, all seasons for his own. Even in our New England he is found plying his bloodthirsty vocation all the year round. In old England, "our favored country," as Wood says, they are familiar objects, as this naturalist found to his sorrow, when he was bitten by them, with an effect hardly less pernicious than if a rattlesnake had fastened upon him. A few years since, a cloud of mosquitoes issuing from Salisbury cathedral led the community to believe that the venerable edifice was on fire. Not long ago, a London hotel, much frequented by Americans, had a visitation of mosquitoes. The invasion was charged to the Americans, and a great popular clamor found expression in the newspapers. An embargo and non-intercourse were imminent when the alarm subsided by the discovery, that the pest originated, as it often does, in a foul cistern. Thus one *casus belli* between two nations, that should be friendly, was removed, and "the tight little isle" had peace. The grave Encyclopædia Britanica comforts the world with the reflection that the alarming reports of mosquitoes in the British Islands arise from the fact that hot weather makes the ordinary English gnat more annoying, the heat also causing a bodily condition more susceptible to the insect bite. It is a fact that the warmer or the more sultry the weather, the greater is the mosquito's thirst for blood and the more forcible his flight. It is then that the smart and sting of these dexterous Shylocks are most cruel.

There are fertile regions in some of the States which are rendered incapable of cultivation because of this enemy of man and beast. In Eastern Europe and in Asia their rapacious attacks have caused insanity and death. Walter Colton says that, in California, criminals have been made to confess by being exposed to these insects. They could withstand any torture but this. Some twenty years ago the mosquito hordes established a cordon around New York, and almost interrupted communications with the city, so fierce were the assaults they made upon all the lines of approach. The cars were filled with them, and they hung over the roads in clouds. We recall a short stage ride in Long Island, when they occupied the bushes in billions, and darkened the very air. It was a relief to escape their bloodthirsty demonstrations, on emerging into a clearing near a railroad station, where the fresh breeze drove them back, and to be told by a native that they never came "beyond that fence." It is with the mosquito as with the ague: it prevails "over there," but not here. "No mosquitoes" and "no malaria" are the deceiving announcements of half the summer resorts in the land. Why is it that the pardonable audacity that is admissible in the wondrous tales of the angler should be the unpardonable shield for inveracity in regard to these pestiferous insects?

The mosquito is developed in moisture. The multitudinous throng proceed from still waters. They are not generated in running streams. The pupa, from which this insect emerges, would be wrecked if the flood that surrounds his frail tenement was lashed even into a moderate fury. His cradle habitation saves him from the shipwreck he so richly deserves.

We have used the pronoun "he," but the truth of nature requires us to say that it is the female mosquito which plays the mischief with mankind. The males have no sting, and are beautiful with their plume-like antennæ and in their moral qualities. They have a more retiring nature than their stronger-minded partners. They rarely enter dwellings, and live quietly and unnoticed in the woods and fields. What an example for the predaceous and vivacious females! These bear a lancet-armed proboscis, and are the pest of infancy and age alike. With velvet wings and neatly bodiced figure, with a nose half as long as their body, they penetrate everywhere, and make night hideous and day despairing. It is dreadful to bear this testimony against the better halves, even of the Culicidæ, but the half is not told, and the veil must be dropped over the misdeeds of these wanton and merciless creatures, who have such a multitude of sins to answer for, and whose delicate and marvellous organizations cannot reconcile us to their existence.

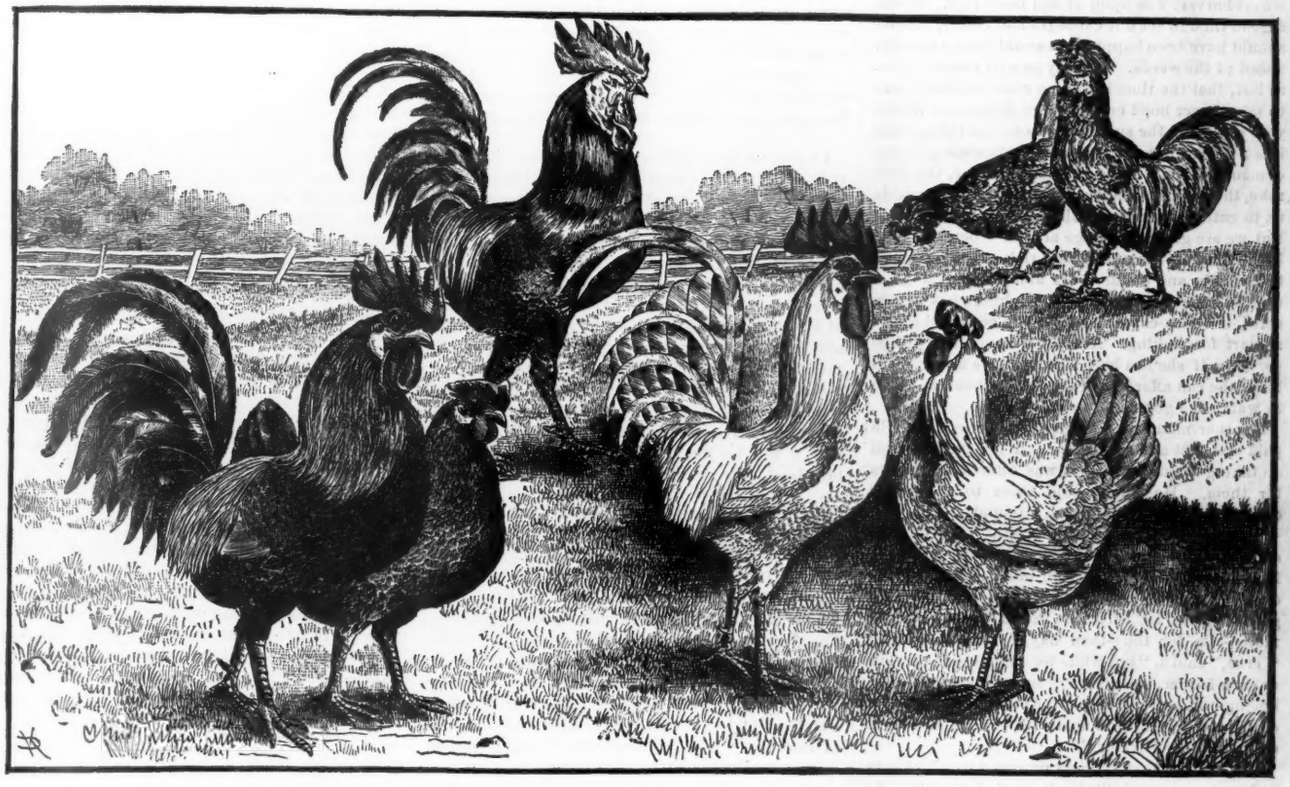
One thing further may be said. The mosquito sometimes disappears from localities where he has once been known. More frequently he sets up in business in unfamiliar localities, as if seeking for "fresh fields and pastures new." Look, then, to your drains and cisterns; to your shrubbery, and to festering heaps of decay. The mosquito loses no opportunity to gain a foothold, and he multiplies with startling rapidity. The water supply of cities and towns introduces these insects from lakes and rivers more or less remote. In one of the finest cities in this State, the mosquito, as a permanent investment, came with the widening of the Erie Canal into "broad waters," still and sluggish, and with the development of water works, that tapped a lake on whose surface and banks these insects were most abundant. They came to town with the water, and they came to stay. In New York City they are more numerous around and near the Croton reservoirs and the many unfilled lots than elsewhere. The water supply is a necessity. It brings the best gifts the country can bestow, but it brings also an unmitigated pest.

Persistent Layers—Non-Sitters.

In the course of breeding of poultry, especially of fowls, the selection of those which laid the most eggs has naturally produced fowls in which the egg-laying tendency overpowers the tendency to sit entirely, so that they lay and do not sit. In the case of very old hens, the brooding tendency sometimes becomes dominant for a short time. The many breeds of fowls which have sprung up, having this quality of laying and not sitting, may be classed in four groups—all layers of white eggs. *First.*—Single-combed fowls, including the Black-Spanish, Minorcas, Andalusians and Leghorns in variety. These all are distinguished by large, erect, single combs in the cocks, and drooping combs in the hens. *Second.*—The rose-combed fowls of the Hamburg group. *Third.*—The true top-knots "—White-Crested Black Polish, Golden-Spangled Polish, Silver-Spangled Polish, White Polish, all of which have split or double combs, or the rudiments of such combs. *Fourth.*—The Galic group of fowls, some of which, like the Crevecœurs and the Houdans, have crests like the Polish; others, like the Gelderland fowls of Holland, La Fleche and La Bresse of France, show the split or bifurcated comb or the rudiments of it. Among all these the most useful, simply as egg-producers, are to be found in the single-combed group. The fine engraving which we present represents three varieties of this group. The single cock in the rear is of the White-Faced Black Spanish breed, characterized by lustrous black plumage, gay with rainbow tints in the cock, and only a little less glossy in the hens —red combs or wattles and white faces. They lay eggs of the largest size and pure white, of course. The Minorcas are like them but with red faces, and the Andalusians are blue. In the foreground are seen two pairs of Leghorns—White and Brown. Both these breeds are desirable, hardy, prolific, and breed generally true to feathers and style. The Leghorns—and there are several other breeds—are by no means so high-bred as the Spanish, yet they are hardier, and the eggs, though smaller, are more abundant, so that so long as eggs sell by the dozen, rather than by the pound, they are very profitable fowls to keep. The pair of fowls in the background are Houdans, representations of the Galic group. They are favorite French fowls, and combine egg laying and flesh production in a high degree; are, besides, hardy, prolific, and, like all the other Gallic fowls, excellent eating, which can hardly be said with truth of the fowls of any other of the groups of non-sitters.

Success with fowls kept exclusively for their eggs, is gained only by constant care for their cleanliness and comfort. They must have a variety of food, a good, large run, with opportunity to exercise, or be forced to take exercise in scratching for their feed, as upon a floor covered with chaffed straw. They may be kept safely in flocks of seventy to one hundred, but the larger the flock the more danger there is from disease and from thieves. The free use of crude carbolic acid is a great safeguard. It may be applied in sawdust or clay, the dry material being moistened by the carbolic acid thoroughly stirred into it. The less of the carbolic acid that is used the better, provided every particle of sawdust or of dry clay has its quota. The disinfectant thus prepared, may be used in the nests, in the dusting box, upon the floors, under the roots, etc. It is fatal alike to parasites and to tendency to disease in most cases. It cannot be depended upon in dirty houses, for fermenting manure, receiving fresh additions constantly, will overpower almost any disinfectant that could be safely used.

By spading or plowing up a portion of the runs frequently, fowls gain healthful exercise and find a few grubs and worms, and with these breeds of fowls, which are all very active by nature, exercise means eggs, and incidentally, perfect health.



LEGHORNS, HOUDANS, AND BLACK SPANISH FOWLS.

Drawn and Engraved for the American Agriculturist.

THE BEST SOIL FOR ASPARAGUS.—The worst soil for asparagus is any soil that rests on a wet, undrained, retentive clay subsoil. Thorough underdraining, either natural or artificial, is absolutely essential to the rapid growth of asparagus. If this is secured, it makes comparatively little difference what the soil is. The general opinion is that sandy soil, mixed with more or less muck, is best, but we have seen just as good asparagus growing on a rather heavy clay, with an underdrain beneath it, as on sandy soil adjoining. Drainage first, and underground irrigation afterwards, gives the best results, but it is seldom that such natural condition can be found; they must be provided.

Keeping Fowls in Confinement.

The principal difference between hens in confinement and a flock having the privilege of a large field or orchard, is not that the free fowls derive more food, or a greater variety, for everything necessary to their comfort may be supplied them when they are shut up in yards. If there is any advantage in the keeping of the two flocks, it is with those that are confined, for these are under the direct watchfulness of the owner, and have no wants unsupplied. Admitting that the flock in confinement is supplied with plenty of food, of a varied character, pure water, warm and dry quarters, and everything necessary to prosperity and production, it must be acknowledged that the flock having free range, if it receives equal care, or even partial attention, will give better results than the other.

Knowing such to be the case, as a rule, the question is, What is the cause? It is due to the fact that when fowls are confined they are overfed. Being accustomed to have their food brought to them instead of seeking it, they have no inducement to exercise. With them, it is, wait, and during the period of idleness they soon learn to pull feathers, and engage in all the vices arising from laziness and enforced idleness. If they are so fed that they must always seek the food in some manner, by being compelled to work for it, and not eat all they wish in a few moments, they would have but little time for leisure. All food should be given in a way to compel the fowls to scratch for it, for exercise is essential to egg production. It matters not how much space a flock may work over, for the hens of some of the large breeds do best on a small range, provided they are kept busy, and this should be done, even if no food is given during the day, by allowing them all the grain just before they go to roost. Keep them in full exercise, and avoid getting them fat, unless they are intended for market.

Walks and Talks on the Farm.

New Series.—No. 24.

Our June drouth ended in a three days' pouring rain. We have a big, main underdrain laid for some distance from the outlet with ten-inch pipes, and then with three five-inch pipes, and higher up with two five-inch pipes. It is the outlet for a series of underdrains, draining fifty acres of land. This underdrain generally stops running in June and does not, as a rule, start again till November or December. This three days' rain, however, started the drains again in July. I do not recollect such another instance.

After the rain, we had ten days of hot weather, and the Deacon and I got in all our hay without a shower. But while we were haying, the weeds were growing, and before we could finish hoeing the beans and carrots and parsnips and mangolds, wheat harvest was upon us and more rain. It was a good time to set out cabbages and celery, and we should have been happy if we could have kept well ahead of the weeds. We may as well admit it, first as last, that the time has come when we shall have to raise fewer hoed crops or hire more men by the year or during the summer season. In this section it is not "haying and harvest" that create an extra demand for help. The mowing machine, the steel rake, the hay-fork and the reaper and binder enable us to gather our crops with little or no extra help. But we are growing a large area of "berries," and if the growers are not getting rich at the business, the women and children are able to earn a good deal of money. One of my neighbors has fifteen acres of Black-caps and pays one cent and a half a quart for picking. A smart woman makes $1.50 per day; if she has half a dozen boys and girls to help, she can afford to leave her husband at home to watch the geese and run the house.

Another man has a large lot of currants. He paid one cent and a half a pound for picking, and on taking them to market was offered two cents for them. He finally sold them to a canning establishment for three cents a pound.

"We cannot give up hoed crops," said the Deacon. "Of all crops on the farm, a good corn crop is the most valuable and the most important. It cleans the land, yields more grain per acre, and gives a great lot of stalks that I consider worth more—ton for ton—than hay, for milch cows." "True," said I, "but while we cannot give up corn or corn-fodder, we must try to get along with less hoeing—or, better still, get the corn hoeing all done early, and depend principally on the frequent use of the horse-cultivator."

One of our best farmers proposes to adopt oats and peas as a substitute, in part, for corn. He wants a crop, he says, that can be sown with a drill and cut with a reaper and thrashed by a steam-engine, and is off of the land early enough to be followed by winter wheat. For sheep, the straw from oats and peas makes excellent fodder. And if you get a heavy growth it smothers the weeds and leaves the land cleaner for wheat than an oat or barley stubble. I have grown oats and peas, and I think highly of the crop; and if our corn should continue to be as poor as it has been for some years past, many farmers, like my friend, will be inclined to plant less corn and sow more oats and peas.

If we do this, we shall have to keep more sheep and fatten them in winter, or raise more fat lambs. Those farmers who keep large flocks of sheep, especially of the mutton breeds, find that they need more pasture, and we shall have to seed our land more frequently to grass and clover, and keep it down longer. This, while wheat is so low and labor so high, is by no means a disadvantage. If red clover should fail, when sown so frequently, we can sow Alsike and white clover occasionally.

The fact is, the times are hard. It is not easy to keep up one's courage. Turn which way we may, there is not much money in farming. But sheep raising, for mutton and fat lambs, seems to be as promising as anything I can think of. The country is growing rapidly. Capital is abundant. Living is cheap. Our resources are unlimited. There is plenty of work to be done, and no lack of machinery to facilitate its accomplishment. The so-called "working classes" are, or ought to be, better off in this country than at any other time in the history of the world. We have two country butchers that come round twice a week to supply farmers and others with meat. The beef is only so-so, but it is far better than the mutton; and the "lamb" which they bring us is a year-old Merino, so thin and poor that in cooking, the flesh on the leg shrinks so much that it leaves an inch or more of the bone bare. This is always a sure sign that the sheep are poorly fed and that the flesh contains a large percentage of water. When sheep are fat, the lean meat contains more invisible fat, and the meat is tender and juicy and does not shrink away so much in cooking. It is no wonder that mutton is not as popular here as in England. The trouble is not in the breed. We have all the English breeds of sheep here, and the Merino in addition. And, so far as my experience goes, a little Merino blood improves the quality of the mutton and gives us a hardier and healthier sheep, better adapted to our climate and system of farming. We do not feed well enough. It would pay us handsomely to feed our sheep more or less grain, malt-sprouts, bran and cotton-seed cake.

I continue to get letters asking about nitrate of soda. It is for early crops that I particularly recommend it, such as strawberries, lettuce, early cabbages and early cauliflowers, and for cabbage, cauliflower, and celery plants. It also pays well on beets. In forcing any kind of crop, we find nitrate of soda exceedingly useful. For winter wheat, it is doubtful whether at the present price of wheat, nitrate of soda can be used with profit, unless in a small quantity, for the purpose of giving the plants a good start in the fall. For this purpose, I would drill in one hundred pounds of nitrate of soda, and one hundred and fifty pounds of superphosphate per acre, with the seed. In this way, it will be likely to act quicker than if sown broadcast. Do not mix until you are ready to sow.

Many of our largest apple growers tell me they will not have apples enough this year for their own use. Some of these are rather glad that this is so, for they think if we had had a crop this year, the buyers, who lost heavily last year, would not have paid more than the cost of picking and barreling. The fruit canning and evaporating establishments seem to understand the matter, and are taking all the fruit they can obtain. Potatoes, where they have been kept free from weeds and bugs, promise a large yield, but the bugs have been unusually numerous here. We have been over ours three times with Paris green, and even then more or less damage has been done. The trouble seems to be that we do not dress the potatoes late enough in the season. We think the crop is sufficiently advanced to withstand the bugs that are scattered over the large tops, and that it is not worth while to apply more poison. The consequence is that the slugs that are left, furnish a great crop of beetles for next spring.

If Mr. Roosevelt really wants head-lettuce, he can get them by sowing on rich land, and giving the plants plenty of room, and keeping down the weeds. The remarks in the August number of the *American Agriculturist* on "Thinning Roots," applies to this case. Many seem to think it "a hard thing to pull up promising plants and throw them away." But if we would have good cabbages, cauliflowers, lettuce and roots, we must give plenty of room, and above all keep the land clean.

In the article on "Thinning Root Crops," however, there seems to be something left out. It reads as though at eighteen inches apart, there would be 9,800 roots per acre. If eighteen inches apart each way, there would be 19,360 roots per acre. If the rows are three feet apart (which was probably intended), and the roots were eighteen inches apart, there would be 9,680 roots per acre. If sixteen inches apart in the row, there would be 10,890 roots per acre. If a foot apart in the row, there would be 14,520 roots per acre. I sow mangold-wurzels in rows two feet and a half apart, and thin out to about a foot apart in the row. At this distance there are 17,424 roots per acre. If the rows are two feet apart, and the roots are left one foot apart in the rows, there are 21,780 roots per acre. In Lawes' and Gilbert's experiment on mangold-wurzels, the rows are twenty-six inches apart, and the plants are thinned out to eleven inches apart in the row. This gives about the same number of plants as if the rows were two feet apart, and the plants thinned out to twelve inches apart in the row. If we could average roots weighing ten pounds each, we should have over one hundred tons per acre. Such a crop is often grown on paper and occasionally in the field.

ROOT-PRUNING CABBAGES.—During the severe drouth in June, we had a great lot of cabbage plants ready to set out. They were getting too large to transplant well, and we wanted to check their growth. I made a narrow-toothed cultivator that we could run close to the plants six or eight inches deep. I thought this would prune the roots and hold back the plants. We put on a good horse and went twice in a row, and burst up the dry, hard, soil. But, instead of checking the plants, it made them grow all the faster, and they threw out a great mass of very fine roots. It would seem as though the plants got their sap out of the leaves and stems, to form new roots, and then as soon as the new roots were formed, they got moisture out of the mellow soil—though it looked as dry as powder, and the unbroken soil adjoining was almost as hard as a brick.

CULTIVATION OF ORANGE TREES.—C. DeLano, of Florida, says the majority advocate clean cultivation for orange trees, while he and some others practice "green culture" and turning under grass, peas, weeds, etc. His experience for ten years is, that you cannot get too much vegetable matter into the soil. He does not use commercial fertilizers, but gets muck from the dense hummocks and composts it with cotton-seed meal and stable manure. Orchards which have been kept under clean culture have become so poor "that weeds will not grow." If the trees will grow, that would not trouble me! I have never been in Florida and dare not express an opinion on this matter. The same controversy exists here in regard to apple orchards. My Northern Spy orchard, which has been in grass for many years, is in full bearing again this year. But it receives more manure, as a top-dressing, than the average orchard, and the grass is all consumed on the land by the pigs which are pastured there.

DESTROYING INSECTS AS A BUSINESS.—Yes, it is a capital idea — having men go round who make it a business of applying Paris green, London purple, or other poisons, to apple orchards attacked by canker-worms, etc. They have the force pump, and tanks for water, and everything convenient, and when the job is done, there are no vessels which have had poison in them left on the farm. The same plan might be extended to the application of Paris green for the potato bugs—the farmer and his men lending a helping hand. For one, I should be glad to feel that there was not an ounce of Paris green on the farm, and no pail, or tub, or broom, that had been used in fighting the bugs. Success to the new plan! Another year, I hope, will witness its general introduction.

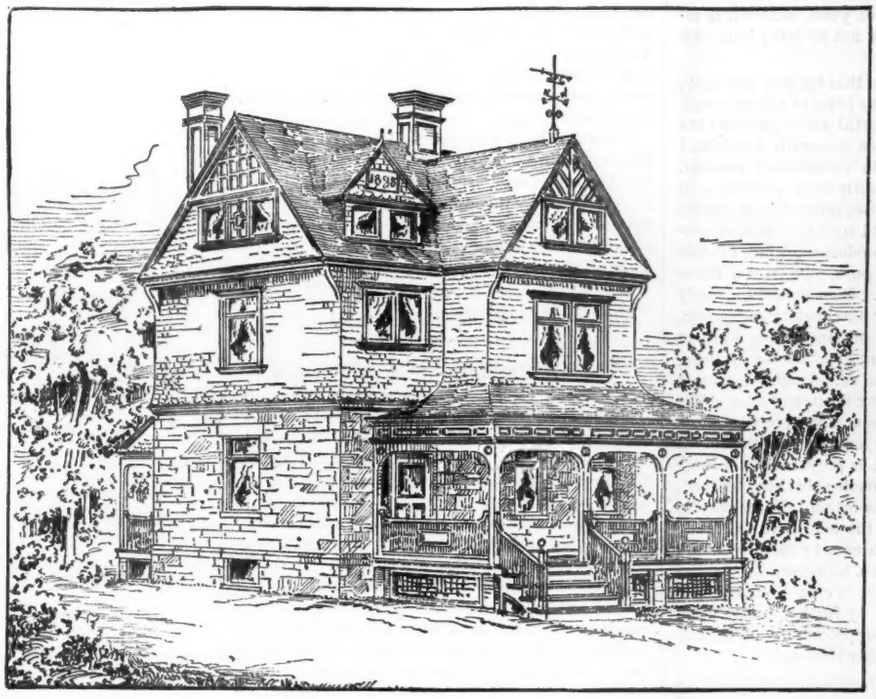
I do not want to see a lot of quacks perambulating the country with mysterious mixtures for fertilizing the land and killing the worms. I would like to see some intelligent young man—say a graduate of an agricultural college, who had made entomology a study, and who knew the habits of our insect pests, and how best to attack them, take hold of this matter. And not one, merely, but scores, and hundreds. We would give them a hearty welcome. They would do good missionary work.

CELERY RAISING FOR CHILDREN.—A girl of thirteen years and a boy of twelve in Marshal Co., Kan., want to know if they can take care of an acre of celery if all the plowing is done for them. They will need some help in earthing up. All the other work they can do with a little advice and assistance.

Design for Rural Cottage Costing $1,800.

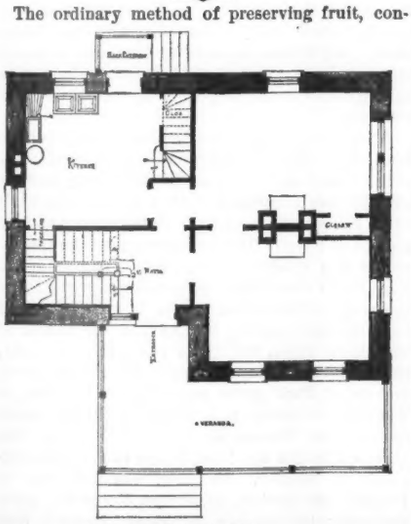
CHAS. P. H. GILBERT, ARCHITECT.

The cottage shown in the engraving has recently been built upon a farm on the Hudson River, near New York City. From the perspective view and the floor plans, it may be readily seen that the entire structure is a model of beauty and compactness, and withal, for so small a house, roomy and light. On the first floor are two rooms and the kitchen, which contains a sink, wash-tubs, closets and a portable range; in short, all the modern conveniences. On the second floor are three good sized bedrooms, with a closet in each, and in the attic is ample space for the construction of two extra sleeping rooms if they should be desired. A prominent feature of the cottage is the back stairway leading from the kitchen to the second story; a convenience seldom to be had in a small house without materially diminishing the size of the room above. The connections between the rooms, as shown in the diagrams, are perfect. The entrance to the cellar, which extends under the whole structure, is through the kitchen.



PERSPECTIVE VIEW OF RURAL COTTAGE.

The first story is of rough-cut stone; above this the house is built full-frame, and finished in California redwood shingles, cut round on the sides of the building and octagonal on the gables. The roof is of pine shingles. The same plan could be carried out in wood on the first story for $1,600, provided the lumber had not to be hauled any great distance. The outside is painted a bronze-green body, with seal-brown trimmings, the shutters red, and the shingles red with bronze trimmings. There is a large piazza in the front of the house and a porch in the rear.



GROUND PLAN.

Preservatives and Antiseptics.

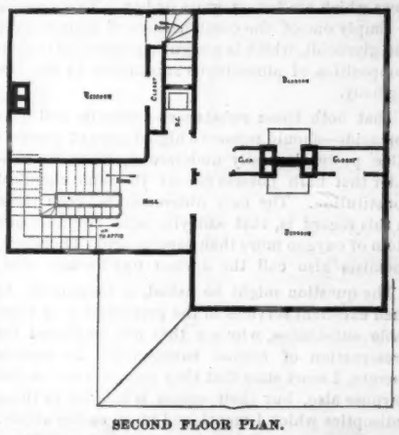
H. ENDEMANN, PH. D., SANITARY CHEMIST, N. Y. CITY.

The ordinary method of preserving fruit, consists in immersing the fruit for a very short time in a boiling solution of sugar, then transferring it into jars, pouring the hot syrup solution in which the boiling has been done, over the fruit, until the bottle is filled, and then screwing on the cover, which is made air-tight with an India rubber ring. The boiling is necessary for the destruction of the organisms, which abound on the fruit itself and in the atmosphere. The presence of a considerable quantity of sugar, would, no doubt, prevent the growth of the organisms from outside germs, but as preserves are preferred with a smaller quantity of sugar, this would not effectually stop their development. We must resort, therefore, to the exclusion of the impure outside air; hence, we close the jars hermetically. This process, when well carried out, and when the joints of the jars are well tightened, undoubtedly gives us the best and most delicious preserves, but the conditions for good preservation must be most strictly adhered to. The smallest opening, which allows the air from outside to enter the jar, is sufficient to produce, in the first place, mould on the surface, and, later on, fermentation of the contents.

To prevent the spoiling of the preserves from this cause, salicylic acid, in small quantities, has been used with excellent results. If the method of operation described above is used for the preservation, the salicylic acid should not be added until the sugar-liquor containing the fruit has cooled to about one hundred and seventy degrees Fahr. Otherwise, when it is added to the boiling sugar solution, most of the salicylic acid volatilizes with the vapor of the water. One dram of salicylic acid for about seven pounds of fruit is sufficient; or, one ounce of salicylic acid will preserve fifty-six pounds of fruit. This preservation is so effective, that jars closing air-tight can even be dispensed with. Yet it is better, if this be intended, not to use a sugar solution but to let the sugar draw its moisture from the fruit. Thereby the volume of the preserves is reduced, and any preservative added, will therefore act more energetically. In order to preserve according to this method—for instance, cherries, plums, blackberries, or peaches—one proceeds as follows: Fruit and sugar are placed in layers in the jars in which they are to be kept. The top layer is prepared by mixing sugar with one teaspoonful of salicylic acid, and then spreading thin. The so filled jars are then heated by placing them in boiling water, for from fifteen to thirty minutes, according to the size of the fruit. Before the jars are closed by parchment paper, or otherwise, it is well to spread some salicylic acid paper over the surface of the preserves. This will effectually prevent the formation of mould. If preserves commence to spoil, it will always be noticed that at first some mould forms at the surface, and that from these points of infection, the destruction descends into the mass. This shows the importance of particularly protecting the surface. This salicylic acid paper is best prepared by dissolving one part, by weight, of salicylic acid, in five parts, by weight, of spirits (rum, brandy, etc.); saturate filtering paper, or other soft white paper with this solution, and use it fresh; or dry the paper, if it is to be kept for future use. Whenever this paper is used, care must be taken that it is well spread over the surface, and that no air, bubbles remain between the paper and the surface of the preserves. The quantity of salicylic acid for other kinds of preserves, is as follows: Vinegar preserves require one dram of salicylic acid, for three pounds of fruit. The salicylic acid is dissolved in the hot vinegar. Jellies require about one dram of the acid for every three pounds. In this case, it is well to dissolve the salicylic acid in spirits before use.

Two ounces of salicylic acid are sufficient to greatly increase the keeping qualities of one hundred pounds of fruit jam. People who go about with their eyes open, have undoubtedly noticed how easy it has become of late to obtain sweet and unfermented cider wherever they ask for it, and that this is really sweet, and rarely shows any signs of fermentation. The secret of this is, that cider manufacturers have adopted the use of salicylic acid for the preservation of their product. It is for this purpose necessary, that the salicylic acid is applied as soon as the cider leaves the press, as only under these circumstances is it possible to effect preservation without the use of an undue quantity of the acid. The quantity of salicylic acid thus required, is about one ounce for each three gallons, or more, of cider, according to the period of time for which it appears desirable to preserve it.

Edward Perrins obtained a patent in England (6,707, Apr. 23, 1884), for the preparation of unfermented drinks. Sweetened, ordinary beer mash (containing hops) is preserved by the addition of three ounces of salicylic acid, for each twenty-eight gallons. This mixture is then saturated with car-



SECOND FLOOR PLAN.

bonic acid gas, under pressure, in an ordinary soda water apparatus. The same method is, of course, applicable for the preparation of effervescent sweet cider, grape juice, etc.

Yeast may also be preserved by the use of salicylic acid. This is based upon the same principle—namely, that the organisms which accompany the growth of yeast in sugar solutions, are easier destroyed than yeast itself. For the manufacture of compressed yeast, one dram of salicylic acid is added to every ten gallons of yeast, before it is filtered. Such yeast becomes not so easily blue, and withstands putrefaction.

Experiments have proven that benzoic acid may, in many cases, be used in the place of salicylic acid. Benzoic acid is a very powerful antiseptic; and the reason why it has not been generally adopted, I believe to be due, simply to commercial reasons. Benzoic acid is far more costly than salicylic acid has become, since it was discovered that it may be prepared from carbolic acid by a very simple process. Salicylic acid is also odorless, while benzoic acid, unless exceptionally pure, possesses a flavor calling to mind its origin. Benzoic acid, notably the finer quality, is either obtained from benzoin, which is a balsamic resin obtained from a Styrax tree, which grows in, and is a native of Java, Borneo and Sumatra. The acid prepared from it preserves the peculiar styrax flavor and odor. The cheaper qualities of benzoic acid are prepared from hippuric acid, which is a normal constituent of cow's urine, from which it is prepared on a large scale. The flavor of the benzoic acid thus obtained, likewise strongly recalls its origin. These flavors are not therefore, due to the acid, but to certain adhering impurities, which can, by further manipulation be removed. Since, however, the yet impure benzoic acid is higher in cost than salicylic acid, it is easily seen that by further purification, which means expense, the probability of its employment will be still further removed.

Benzoic acid is, however, also produced from a coal-tar product, "napthalene," but I have not met with this article as yet, which is merely produced for immediate consumption in making other benzoyl compounds in chemical manufactures. Should this acid be sufficiently pure when brought into the market, and at the same time cheap enough, it might become a considerable rival of salicylic acid for the preservation of such substances as have already been mentioned, and when it has been proven that salicylic acid is of value.

One might ask, what becomes of the salicylic acid when it enters the system—may it now be taken as a constituent of preserves, or as a medicine? Some of the salicylic acid is certainly decomposed, but if taken in larger quantities, it is again excreted very readily by means of the urine, from which it may be recovered partly unchanged, partly as salicyluric acid. Benzoic acid is not recovered as such, but as hippuric acid—that is, in the same shape as it is found, as a regular constituent of the urine of cows which are fed on grass or hay. This process is simply one of the combinations of benzoic acid and glycocoll, which is a regular product of the decomposition of albuminous substances in the living body.

That both these substances—salicylic and benzoic acids—should possess a high degree of preservative power, is easily understood, when we consider that both possess almost the same chemical constitution. The only difference between them in this regard is, that salicylic acid contains one atom of oxygen more than benzoic acid. Therefore, chemists also call the former oxy-benzoic acid.

The question might be asked, if these acids do such excellent services in the preservation of vegetable substances, why are they not employed for preservation of animal substances? In answer thereto, I must state that they may be used for this purpose also, but their action is inferior to those antiseptics which I mentioned in an earlier article.

The reason for this inferiority, which manifests itself mainly in the brief period for which such preservation lasts (not over two weeks), is obscure. It may probably be found in the fact that the acids themselves succumb in the presence of large quantities of albuminous substances, and may themselves be destroyed under the influences of the repeated and overwhelming attacks of the organisms which produce the decay of the articles. It is also a fact that these acids combine with the albuminous substances—as is evident from the fact that meat, under the influence of these acids, becomes discolored, and thus they may lose much of their activity. In one case, however, they are useful, and that is for the preservation of eggs. Salicylic acid has been effectually used for this purpose. The best method is, to dissolve the acid in Vaseline, and then spread this in quite a thin layer over the shells, and remove the excess, after a short time, by wiping the eggs.

It has also been proposed to lay the eggs in a solution of salicylic acid in water. There is no doubt that the septic organisms already on the shell, will be destroyed by this treatment; but a continued action of the acid is, I believe, out of the question, since the salicylic acid will, in time, unite with the lime of the shell, whereby its further usefulness will be checked; for it is only the free salicylic acid which acts as an antiseptic.

The Codlin-Moth, or Apple-Worm.

Probably no other insect is so destructive to the apple crop in England, and with us, as that which, in its perfect or winged state, is known as the Codlin-moth, and in its larval or caterpillar state, as the Apple-worm. No other destructive insect more strikingly illustrates the fact—which cannot be too often insisted upon—that, in order to successfully counteract the work of an insect, we must know its ways—in fact, must understand its life history. It is not more important that the commanders of our soldiers on the frontier should understand the methods of warfare of the Indian tribes, than that the farmer and orchardist should know the tactics of his insect enemies, understand the different forms in which they appear, and in which form each may be most readily attacked. The history in this case, can be told in brief, with the aid of some illustrations. The moth, which bears the name of *Carpocapsa pomonella*, is shown in figure 1, the line just below it giving its actual size. The general color of the moth is light-gray, with darker markings, which give it, as one writer says, "the appearance of watered silk," and another says, "a kind of damasked appearance." The moths first appear in May and June, and, as they fly only at night, are seldom noticed. The moths find the young apples soon after the fruit is set. At that time the young apple, as shown at the lower right hand of figure 2, is erect, with its eye or calyx end uppermost. The moth lays a single egg in the eye of the

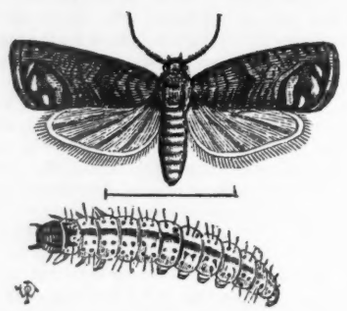


Fig. 1.—CODLIN-MOTH AND LARVA.

young apple. This egg soon hatches, and the larva, or young caterpillar, at once eats its way into the young apple, where it feeds upon the pulp, and, in about three weeks, having made its growth, is ready to depart from its shelter, leaving behind it an accumulation of filth, as shown in the half apple in figure 2. The worm seeks some place of shelter, spins a coccoon, and forms a chrysalis, as shown at the bottom of figure 2. In from nine to fifteen days, according to the temperature, moths issue from these coccoons, and are ready to lay eggs and restock the apples with a second brood of worms, to continue their hidden depredations.

WHERE DO THE CATERPILLARS GO?

Some of the caterpillars leave the apple while it still hangs to the tree, and crawl down until they find a suitable crevice in the bark, in which to spin. In other cases, the fruit falls to the ground, where the caterpillars leave it, and, crawling towards the tree, ascend the trunk, to find a secure place for their cocoons. It is often the case that the caterpillars remain in the fruit after it is gathered, and

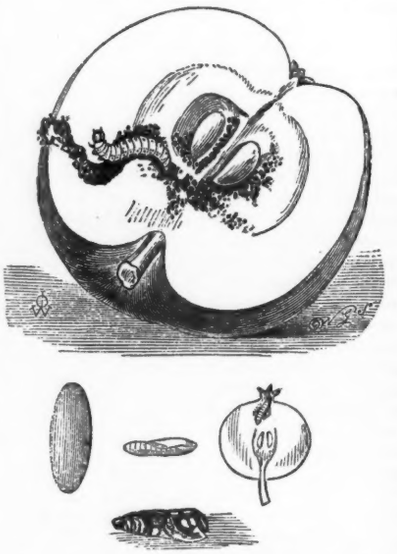


Fig. 2.—INFESTED APPLES AND CHRYSALIS.

are taken to the cellar, where they spin their cocoons, and the moths are ready to escape and commence their work of destruction the next spring.

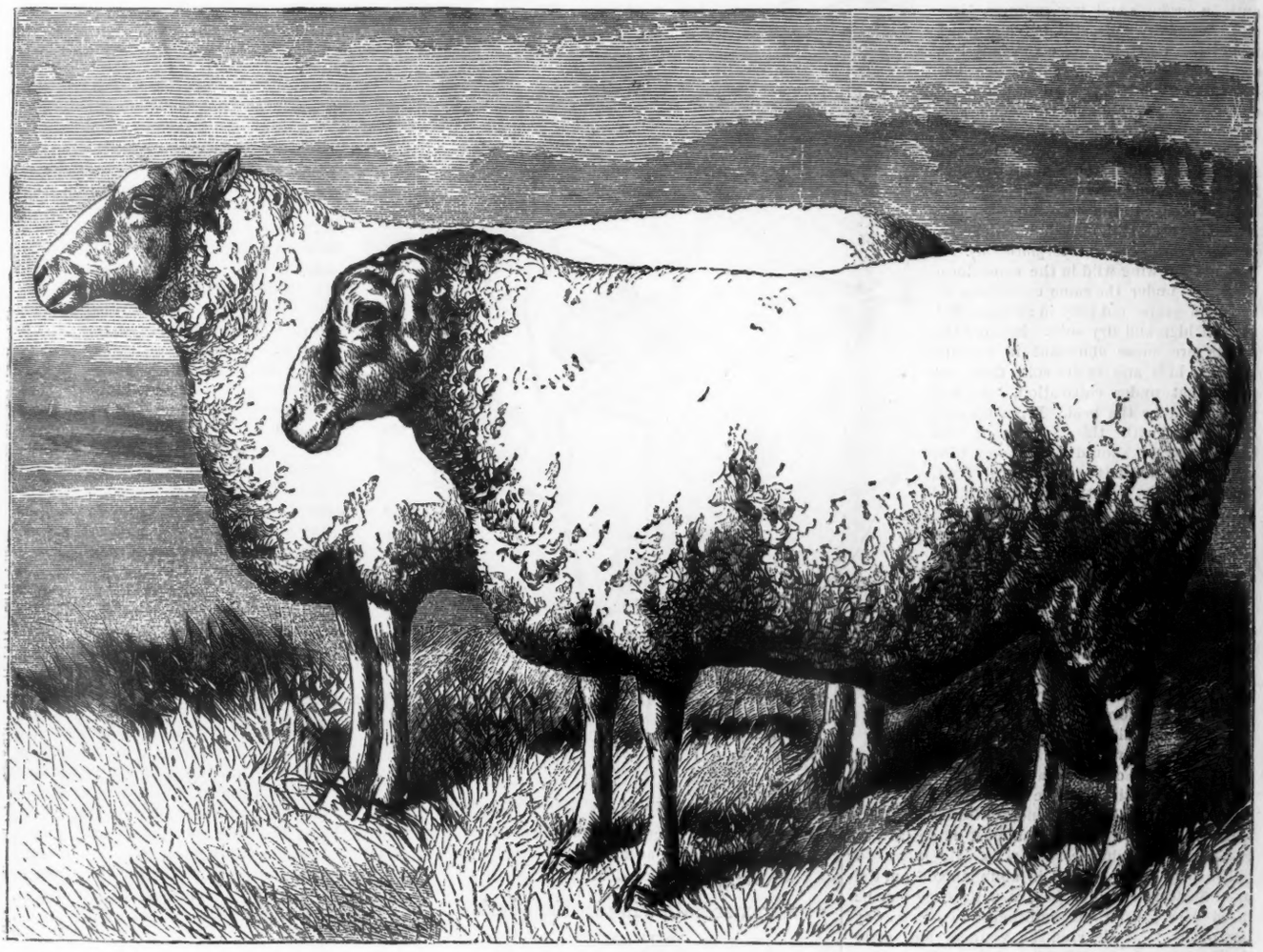
REMEDIES FOR THE APPLE-WORM.

As a large share of the fruit, with the worm still within it, falls to the ground, the picking up of these windfalls and feeding, or otherwise destroying them, or allowing them to be gathered by swine, will naturally suggest itself as an efficient method. Manufacturers of vinegar find it profitable to pick up and press all windfalls; they yield a juice which will make vinegar. The fact that mature worms search for crevices in the bark of the trunk, in which to spin and undergo their transformations, has suggested providing them with artificial shelters for this purpose. Pieces of old carpet, or other woolen fabric, about five inches wide, and long enough to go around the trunk and lap, are fastened with a stout tack. These bands should be applied the last week in June and examined the first week in July, and every ten days thereafter. Any worms or cocoons that may be found under them can be killed by running the bands through a clothes wringer, or by crushing them otherwise.

Within a few years, the Western orchardists have treated the apple-worm upon the principle of "nipping in the bud." As soon as the young fruit is set, the tree is sprayed with a mixture of Paris green and water—one pound of the poison to fifty gallons of water. This is thrown into the tree by means of a spraying or sprinkling engine, in the hope that a drop of the poisoned water will lodge in the eyes of the young apples. The newly hatched apple-worm, in eating its way into the interior of the young apple, will be so effectively poisoned, that it must give up its task. Should the small amount of Paris green remain upon the fruit, it would be too minute to be harmful, but the subsequent rains thoroughly wash it away, so that there can be not the least danger in using the poison in this manner. The chief remedies used in England are barriers, to prevent the worms from ascending the trees to spin. Heavy paper is fastened around the trunks and smeared with tar; this and other means are employed as preventatives.

Lincoln Sheep.

Like the Cotswolds, Leicesters, and others of somewhat similar appearance, the Lincolns are of the long wool sheep of Great Britain. They have an ancient origin, and so far back as we have any historical knowledge of the breed, it has occupied the fens of Lincolnshire, and supplied the factories of Norfolk with their long, glossy wool. The Lincolns were the largest of all the original races of sheep in England. True, they were coarse, but were hardy and quick feeders. Lincolnshire breeders made use freely of the rams of other improved breeds, especially of the Leicesters, and the result is the preservation of the best qualities of the old breed—namely, size, constitution, quick maturity, and superior wool, both in quality, and in the weight of fleeces. The first improvement was made by the use of the Leicester, as improved by Bakewell, and as soon as the new blood became assimilated, the Lincolns took on, in the main, the form with which we are now-a-days familiar. It is hardly too much to say that they have ever since been the subjects of judicious breeding and constant improvement. There are records of fat wethers weighing two hundred and fifty to two hundred and sixty pounds and over, and carrying a mass of fat upon the ribs, measuring, in one case, nine inches in thickness. Good sized sheep will shear eight to twelve pounds of wool. The modern Lincolns have, however, lost in fleece what they have gained in carcass. We hear no more about wool of one year's growth measuring eighteen inches in length, as, it is said, was sometimes—if not often—the case with the old, unimproved Lincolns. Since the original improvement of the carcass by the Leicester cross, more attention has been paid to the wool, and in this particular the effort has been made with considerable success to breed back the old coat, make it cover the belly better, and regain the gloss, length, weight, and high combing character. There have been several notable flocks of these sheep in the United States, and they always attract much attention at fairs from the size, the fine heads of the rams, and their abundant wool.



LINCOLN SHEEP.

Engraved for the American Agriculturist.

Florida Muck.

It is undoubtedly true that muck receives less attention from farmers and agricultural writers now than formerly. The manufacturers of phosphates and other artificial fertilizers have the floor. They say, "do not waste time in getting muck out of your swamps. Sow phosphates and grow green crops and plow them in, and these will furnish organic matter cheaper than you can get it from your muck beds." So far as carbonaceous matter is concerned, this is true. But it is a question of nitrogen. If there is a good supply of nitrogen in the soil, it will not pay to use muck. Better try to render the nitrogen already in the soil available. On the rich prairie soils of the West, it is not uncommon to find five pounds of nitrogen in a ton of dry soil. No one would think of drawing muck on such soils. But while we have millions of acres of such land in the United States, we have also millions of acres of good land where there is not half a pound of nitrogen in a ton of soil, and millions more of sandy land where there is not over an ounce of nitrogen in 1,000 pounds of soil. The manufacturers of fertilizers will sell us available nitrogen in the form of nitrate of soda, sulphate of ammonia, dried blood, etc., for eighteen cents a pound, and in fish scrap for fifteen cents a pound. And for some crops we can well afford to buy it at these prices. But the true aim of the American farmer is to develop the inert nitrogen existing in the soil. If the use of phosphates and potash will enable him to do this, by raising green crops and plowing them under or feeding them out on the farm, that is good farming. You cannot get the nitrogen, however, unless it is in the soil. You cannot get it from the atmosphere.

There are, unquestionably, many soils so poor in nitrogen that if there is a good muck bed on the farm, the muck can be used to great advantage. The Hon. Charles Delano, of Florida, sent to the chemist of the Department of Agriculture, at Washington, four samples of muck. The dry muck contained 2.43, 1.57, 2.16 and 2.80 per cent. of nitrogen. This is an average of about two and a quarter per cent. In other words, a ton of dry muck contains forty-five pounds of nitogen.

Why will it not pay to use this muck? Mr. Delano writes us, "If a load of this muck is dumped fifteen or twenty feet from an orange tree, the roots of the tree will find it and fill the pile full of fiber roots almost to the top of the pile." The roots were probably in search of moisture and found it in the muck.

Muck alone is not manure. It should be used in connection with phosphates and potash. And it should not be forgotten that muck is slow in its action. It will last many years and give out its nitrogen to plants only as nitrification renders it soluble. For this lime, or potash, or soda is necessary. The subject is certainly worthy of attention.

Cultivation of the Huckleberry.

A. S. FULLER.

When Bartholomew Gosnold, in 1602, discovered wild grapes growing in great abundance in the swamps and low grounds on a little islet near the New England coast, he gave to it the name of Martha's Vineyard, no doubt believing that he had found the home of the wild grapes of the New World. But that little islet, now known as "No-man's Land," nor the larger island, which bears the name of Martha's Vineyard, are considered favorable locations for vineyards, although the wild grapes do grow all along the New England coast, and in swamps and low grounds throughout these United States. While it is true that the wild grapes of North America are found more abundantly in swamps and low grounds, than on high and dry soils, still, no vineyardist would think of planting a vineyard in a swamp, because long experience has shown that high, dry and well-drained soils are far preferable for such purposes than those that are low and wet.

There is another very valuable native fruit, about which the same erroneous ideas exist, that were for a long time held in regard to the indigenous grapes; it is our swamp high-bush huckleberry, or blueberry (*Vaccinium corymbosum*). It is found growing wild in the same localities, and under the same conditions as the wild grape, not only in swamps, but also on high and dry soils. Because the plants are more abundant in swamps than on hills and in dry soils, does not prove that under cultivation, low, wet soils would be the best. From my own experience with this species of the huckleberry, I should not choose low, wet soils in which to plant it for fruit, but in a sandy, or, at least, well drained one. The plants thrive best in peat, and the almost pure vegetable deposits of the swamps; also in the light, sandy soils, and even high up on the hills of New Jersey and adjoining States, in light, sandy soils, in which the running blackberries and five-finger plant, have to struggle to obtain nutriment from the sterile soil. A plant that will grow and thrive—bearing a heavy crop of fruit in moderately favorable seasons—in such soils, will certainly thrive under good cultivation, provided the soil is not a heavy, unctious clay. I have had no experience in cultivating the huckleberry on clay soils; but in sand, or sandy loam, they may be grown almost as readily as currants or gooseberries.

The plants can be had in abundance from the open fields or swamps, and usually they can be lifted with good roots, and then by cutting away the older stems—leaving the younger and more thrifty—there is no difficulty whatever in making them live. The past spring I had occasion to move some plants of the high-bush huckleberry that were set out eighteen years ago. They were dug up, and with saw and hand-axe the stools were divided up and replanted, and all have lived and are now growing finely, and even bearing fruit. I have dug up wild plants for my own use, and for several of my correspondents and friends, almost every season for the past twenty years or longer, and have not as yet discovered that the huckleberries of any of the species are at all difficult to make grow, or thrive under cultivation. They may all be propagated by layers, or seed; but the latter is a slow process, as the plants make little progress for the first few years, and we may save a decade or two by taking up the wild plants.

As there are several distinct natural varieties of the high-bush species, as well as of other species, it is as well to mark the plants to be taken up when in leaf or fruit. The genuine, or true *Vaccinium corymbosum*, bears quite large, round berries, covered with a blue bloom; but there is a variety with oval fruit, jet-black, without bloom, and another with globular berries and also destitute of bloom. Of the dwarf, early blueberry (*V. Pennsylvanicum*), common to high, dry and rather sterile soils, there are also several distinct natural varieties; one of which is an albino, the fruit being pure white, and fully as transparent as the white grape currant.

In cultivating any of the huckleberries on sandy soils, it is advantageous to keep them well mulched, thereby insuring an abundance of moisture at the roots, as well as preventing any baking and overheating of the surface soil. Under proper care and in rich soils, the plants will grow far more rapidly, and yield larger crops of fruit, than when left to grow uncared for, as in their native habitats.

THE SWAMP HUCKLEBERRY (*Vaccinium corymbosum*).

Summer-Fallowing in the South.

JOSEPH HARRIS.

In "Walks and Talks" for July, allusion was made to a neighbor who was summer-fallowing a clover sod for winter wheat. A subscriber of the *American Agriculturist*, in Fauquier Co., Va., writes: "I see that you advocate the practice of summer-fallowing, with the view, I suppose, of preventing weeds from seeding, and with no other motive." In reply to this I may say that I did not specially mean to advocate the practice of summer-fallowing. I merely mentioned what my neighbor was doing—and he is an experienced and successful farmer. Nevertheless, it is a fact that, I think, in many cases a good summer-fallow is a very good thing. If I had my life to live over again, I would summer-fallow more than I have. My object would not be merely to "prevent weeds from seeding," but to kill weeds, and to get the land well and thoroughly plowed, and reduced to a fine, mellow condition. I think my neighbor will have a grand crop of wheat next year, and if he seeds the land with timothy grass this fall, and with clover in the spring, he is almost certain to have a "good catch," and the next year he will have a heavy crop of clover hay, and, if he wishes, a crop of clover seed as a second crop the same year; the next year he will have a good crop of hay—and it will be hay, not weeds.

Now, you may say that the same results can be obtained without summer-fallowing, and in many cases I freely admit that this is the case. Furthermore, I admit that in this justly celebrated wheat-growing section of Western New York, not one farmer in ten now resorts to the old practice of summer-fallowing. Our common rotation is: First year—corn, potatoes or beans; second year—oats or barley, followed with winter wheat, and seeded with timothy grass in the fall, and with clover in the spring; third year—clover hay, the second cutting being left for seed; fourth year—clover and timothy hay; fifth year—the sod is plowed up for corn again, and so on as before. If the land is not too sandy and not too clayey, if it is well drained so that we can get to work on it early in the spring, if it has not been rented or allowed to run down, if it is in good condition and reasonably free from weeds, we get good crops. In such circumstances, there is no need of summer-fallowing. But suppose you have a field of rather stiff clay that is good for winter wheat, but is a little too wet in the spring for getting in barley and oats as early as is desirable, and, furthermore, suppose it is infested with Canada thistles and other weeds, then, I believe, you had better summer-fallow it. Our correspondent in Virginia further says: "In this section it is considered entirely well settled that the very worst possible thing done to land, is to denude it of vegetation at a time of year when the rays of the sun are potent. To keep the land well shaded is the cardinal axiom. Mulch, even of brush, is thought almost equal to manure, and brush is always applied to 'galls' and thin places. I have some stubble now very foul, which I would gladly fallow, were it not for these considerations. Please instruct me." Our correspondent does not say what he proposes to do with this foul stubble land, or whether it is clay or sand. When we talk about summer-fallowing land, or improving it by good plowing and thorough cultivation, we, of course, allude to loamy or clayey land. There is nothing to be gained by summer-fallowing light, sandy land. Light land and heavy land alike is none the worse for being mulched during dry, hot weather. The mulch shades the land and checks evaporation, and keeps the soil beneath moist. This is one of the reasons why we advocate fallowing, and thorough cultivation. Two or three inches of well-worked, fine soil, spread over the land, is a capital mulch. We do not, as a rule, plow, and cultivate, and summer-fallow land for the fun of it. Here we summer-fallow for winter wheat, and seed down the wheat with grass and clover. If we summer-fallowed a piece of land, and kept it fallow and clean year after year, we should impoverish it. The nitric acid developed from the organic matter in the soil would wash away, and we should get no benefit from it. But if we follow the summer-fallow with a crop of winter wheat or rye, seeded by grass and clover, the developed nitric acid is retained in the crops, and the land, instead of being impoverished, is enriched. We are desirous of growing as many crops as we can, and if we do not sow crops, or the crops fail, weeds are pretty certain to come in and take possession of the land, and keep the nitric acid from running to waste. Nature is conservative. We should aim to develop the latent plant food in the soil, and convert it, not into weeds, but into paying crops. A judicious summer-fallow enables us to do this. As a rule, farmers are in no danger of summer-fallowing land too often. The temptation is altogether the other way.

Harvesting Abroad and at Home.

The American tourist in the rural districts of Europe need not be a farmer to be struck with the fact that the implements and farm machines are vastly different from those he has seen in use at home. Even in England, while the style of the implements is not so unlike that of our own, their clumsiness and great weight are everywhere manifest. A manure fork often contains sufficient metal to make several equally good tools and more comfortable to use. A large share of the force of the English farm-hand is expended in lifting and moving useless iron and wood. Even on the Island of Jersey, one of the most garden-like of farm-districts, a plow we saw in use would create a sensation if exhibited at one of our agricultural fairs. If six oxen are required to work it, only two of them do the work of turning the furrows, while the other four drag about the enormous wheels, with the load of iron and wood, the use of which is not apparent. It is on the Continent that one sees the most primitive methods in agriculture. Here we look upon the large farmer who cuts his grain with a cradle, as behind the age. In a German harvest, like that represented in the picture, engraved after Paul Soeborg, the harvesting implements are far behind our cradle. We see an approach towards the cradle in the few fingers attached to the rude scythe with which the workman is cutting the grain, but the work it does must be slow and the grain laid irregularly. By comparing this harvest scene with one upon our own grain farms, where a bright boy mounts the reaper, and starts his span of well-fed horses, one will readily become impressed with the rapid progress we have made in farming methods. It is one of the good results of intelligent travel, that one the better knows and appreciates his own country, and learns how our inventors elevated the calling of the farmer, and made it an occupation demanding intelligence and brains, rather than "main strength and stupidness."

Swine on Stubble.

It is very doubtful if it pays to pasture the stubble ground with hogs. It is certainly better to rake the stubble, and feed or thresh the gleanings. There should be little grain left on the ground; and the hogs, wandering around to find it when the weather is warm, will lose nearly, if not quite, as much flesh as they can make from the gleanings. They are subjected, also, to conditions that are decidedly unfavorable. Their nostrils being near the ground, they inhale a great deal of dust from it, and also from the stubbles and weeds which their bodies brush off; and this last, especially, is hurtful to the lungs, throat and nasal passages, and doubtless is often responsible for the diseases of these organs, which prevail in the autumn. Wandering around in the heat and dust, the animals become very thirsty, drink to excess, and get more disease than food. Pasturing the stubble with hogs is saving at the spigot to waste at the bung-hole.

A HARVEST SCENE IN GERMANY.

Engraved (after Paul Soeborg) for the American Agriculturist.

OUR BASKET.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or, a small club may be made a large one at reduced rates, thus: One having sent 5 subscribers and $6.00, may afterwards send 5 names more and $4.00, making 10 subscribers at $1.00 each; and so for any of the other club rates. Subscriptions can begin at any time, as every number of the paper is complete in itself.

Bound Copies of Volume 44 (for 1885), uniformly bound, in cloth, gilt backs, will be furnished at this office for $2. If sent by mail, $2.30. We can usually supply at same rate any of the previous volumes, *i. e.*, from volume 16 to 44 inclusive.

Ants in the Garden.—"T. G.," Lodi, N. J., is troubled with ants in the soil of his garden, and asks how to get rid of them. Several others have recently written to the same effect. A neighbor of ours sprinkles a little kerosene in their runways, and pours some of it into their holes, if not too near a valuable plant, and they soon leave in disgust. Solutions of chloride of lime, of yellow prussiate of potash and others have been recommended, to be used in a similar manner.

Forcing Large-Flowered Paniced Hydrangea.—We have often called attention to the great excellence of *Hydrangea paniculata grandiflora*. It is the most popular and valuable of all the hardy ornamental shrubs of comparatively recent introduction. It may be propagated very readily from cuttings, and a plant only a foot high will produce an enormous panicle of white flowers, which later turn to a reddish-purple color. Among its other good qualities, it forces very readily; it is a great favorite in London, and those who supply Covent-Garden, and other London markets, force immense quanities of this hydrangea each spring.

Hardiness of Polled Scotch Cattle.—There is a considerable number of these now bred and raised on the great Western plains. In the "round-ups" for branding and sorting, the past season, of the immense herds there, it is stated that not a single dead carcass of the grade Galloway or Aberdeen Angus was discovered, while many of the grades of all other improved breeds, as well as some thousands of the wild Texans, were found encumbering the plains. It is possible that better care was bestowed on the Scotch Polls, which, if so, may account for their not sustaining any loss during the past winter, while running out exposed to its severity; yet certain it is, they prove a most hardy race.

Shipping Asparagus Plants.—C. D., Florida. It is not necessary to send asparagus plants by express. During cold weather in autumn, winter or spring, if carefully packed, they can be a month or more on the cars or steamer without injury. From two to three thousand plants can be packed in a barrel. If set in rows three feet apart and eighteen inches in the row, it takes 7,260 plants for an acre. If set in rows four feet apart and two feet in the row, 5,445 plants will set an acre. Where land is cheap and manure scarce, and you do not intend to buy fertilizers, set in rows five feet apart each way. At this distance only 1,743 plants are required per acre. Be careful to separate the plants and set out only one plant in a place.

Town Sewage and Irrigation.—A. B. Allen, Ocean Co., N. J., writes us: "Under this head, in the July *American Agriculturist*, page 284, I gave some account of the benefit of this as applied to crops in Great Britain in former years. I now see it stated in the London "Agricultural Gazette," that in consequence of the uncommonly dry season in England, the application of sewage has been particularly beneficial on various farms in different parts of the Kingdom. Italian rye grass will make six heavy cuttings by autumn, and mangolds will turn out at least forty tons per acre; and this on land of so little natural fertility, that without fertilizers it would not produce crops one-fifth as large as it now does with sewage. To this benefit of a large increase of crops, follows a still greater one in the purification of town atmosphere, by cleansing them of their sewage. It puts an end to typhus fever and other fatal and dreaded diseases, which otherwise prevail among them."

Plants Named.—J. L. Pound, Shelby Co., Ky. The plant with large clusters of dark orange-colored small flowers is called "Butterfly-weed," probably on account of the gay appearance of its flowers, and "Pleurisy-root," its large roots being to some extent employed in medicine. *Asclepias tuberosa* is its botanical name. Most of the species of *Asclepias* have an abundant milky juice and are called "Milkweed," but this is an exception. The plant, though a native, is worth cultivating. In a rather large collection of hardy plants, this is a prime favorite with us, there being but few more showy plants, even among the exotics. The other specimen was so broken into fragments that it could not be identified; send again, if still in flower.

California Lima Beans.—"H. M. F.," New York City, having seen at a commission dealer's store the announcement: "Fresh California Lima Beans," asks us what they are. They are Lima beans, allowed to ripen on the vines; the term "Fresh" being used in the sense of "new crop." The beans are shelled or threshed out, and packed in sacks holding a bushel. The climate of California gives Lima beans the long season which they need to be profitable. With us, they only come into full bearing, when the frost puts an end to them. Limas, allowed to ripen, are as much superior to the common white beans, as, when green, they are far beyond all other green beans. Used for baked beans, they yield a glorified form of that favorite Yankee dish. The shipments from California to the Eastern markets are quite large, and are increasing each year.

A Kicking Cow.—R. S. Reed, Madison Co., Ill., has a kicking cow, and wants some apparatus to cure her of the habit. There are countless contrivances for this purpose, the best of which have from time to time been given to our readers through these columns. It is needless to say that a cow rarely kicks, unless she does so in defense or from pain, and by rough handling she very soon gets in the habit of kicking. Kind treatment is the first factor in effecting a cure; if this is insufficient, pass a wire around the lower jaw, fasten the ends by twisting, pass a strap or cord from the wire over the back of the neck so as to hold the wire in place; next tie a stout cord, long enough to reach back to the milker, to the wire around the jaw. On the first intimation of an intention to kick, give the rope a jerk, and the cow's attention will be diverted from her udder to her jaw; after a few such lessons she will forget to kick altogether.

Increase of the Percheron Horse in France and in America.—A. B. Allen, founder of the *American Agriculturist*, writes us: "Owing to the numerous American importations for fifteen years past, of this large European breed of horses, the number of the most improved in Le Perche district has greatly increased, thanks to the stimulus we have given them; and they are the most numerous of all others on this side of the water. In the first six months of the present year, Mr. Tocheau, a French breeder in Le Perche, sold upwards of $20,000 worth of these horses; but this sum, although large, is small compared with the sales of Mr. Dunham, of Illinois. We should not be surprised if during this period they amounted to five times as much as those of M. Tocheau; for he sold during April alone up to the figure of $30,000, and all the other months considerable numbers."

"Scurvy Legs in Fowls."—"Talahatchie," of Mississippi, writes: "In 'Our Basket,' in the June number of the *American Agriculturist*, is given a treatment for 'scurvy legs in fowls.' That is, scaly excrescences on their legs. This is a distressing and hurtful deformity, I have for years used a remedy, which is more easily applied than that recommended by Mr. W. S. Fowler, and is a sure cure. It is a strong decoction of tobacco, with which to wash the diseased legs. The idea was suggested to me by seeing sheep cured of scab by the use of tobacco, and having many chickens afflicted with scaly legs, some one or two being so disabled that they could not walk; these I caught up and bound tobacco leaves, after wetting them thoroughly, to their legs, and allowed them to remain twenty-four hours. When removed, many of the scales came off with the tobacco, and the chickens walked with apparent ease, and in a few days they were perfectly well, with clean, sightly legs. But having so many diseased ones, I fell upon a plan to expedite matters and save much trouble. I improvised a coop out of boards, having but one entrance. Leading straight off from this door, I dug a shallow trench six feet long, into which I sunk a trough level with the surface of the ground, which was as long as the ditch, six inches wide and two deep, and drove a row of old shingles close along by each side, forming a narrow lane. For two days the food for the chickens was put in the coop, and they had to walk down this lane and through the dry trough to their meals; then the trough was filled with a decoction of tobacco, made very strong, and the afflicted family was made to do their own feet washing and to cure themselves, which they did effectively."

A Grass which Appeared in a Lawn.—Miss J. R., Lambertville, N. J., sends us a grass for a name, of which she says: "It was found in a lawn three years ago, when it covered a space of but two inches. It has now spread to cover ten or twelve inches. It is an unknown grass to all our farmers, and we are anxious to get more, as it is not affected by drouth." The specimen is "Thin-grass," *Agrostis perennans*, a native, but not very abundant anywhere, and its seeds are not usually kept by dealers. If our correspondent wishes seeds, she should begin by collecting the few already produced by her clump; sow these, and so on until she has a patch large enough to supply her with the seeds she needs.

Leaf-Cutting Bees.—Walter P. Benjamin, McLean Co., Ill. The curious, cocoon-like structure, made of green leaves, which you found in the twine-box of your harvester, is the work of a species of Leaf-cutting Bee (*Megachile centuncularis*). This industrious little bee uses the leaves of various kinds of plants for making her cells, in each of which she deposits a single egg. But before laying the egg, she gathers a quantity of pollen and places this in the cell, as food for the young grub that will hatch from the egg. When one cell is completed and closed up, she proceeds to build another, often connecting them in a long row—end to end—as in the one you send, which contained five cells, each complete in itself, but the whole enclosed in a leafy envelope. Some of these leaf-cutting bees burrow in the stems of shrubs having a large pith, like the common elder, and the deutzias. Sometimes these leaf-cutting bees are so abundant that they do considerable injury to certain shrubs, by stripping them of their leaves for making these peculiar cells.

Bots in Horses.—"Tallahatchie," Miss., says: "It requires a degree of temerity to take issue with a paper so ably edited as the *American Agriculturist*, but I trust an old farmer will be pardoned for dissenting from the assertion made in the April number, page 166, where it is stated that: 'Bots rarely ever injure horses, and no means have yet been found for expelling them from the horse without injury to him.' My long observation forces me to assert as positively, that bots do seriously affect the health of horses, yea, and kill them too, as surely as worms are injurious to children; not that bots and worms are at all analogous. I know that the *American Agriculturist* has the veterinary faculty on its side, but plain facts are stubborn things. For brevity's sake, I will only mention one case out of many that I am able to vouch for. Mr. William Wallace, of Albemarle County, Virginia, had a superanuated horse, in good condition, running in a good pasture during spring-time, that was taken sick with the two symptoms usually ascribed to bots. The owner determined to satisfy himself on this much mooted question, and had everything made ready for a post-mortem examination; the old horse was knocked on the head and before life was extinct, he was disembowled, and the maw was found to contain a large number of bots, many of which had eaten their way entirely through the walls of the stomach. The examination disclosed no other cause for the horse's illness. As to the other part of the remark quoted, that 'no means have yet been found for expelling bots from the horse without injuring him,' I think that I have for years used a remedy that is 'dead shot' for bots, and a good tonic for the horse—viz., Dog-button, or *nux-vomica*. It can be had at the drug store ready ground. Dose a tablespoonful in the horse's chopped feed each morning for three consecutive mornings, and after an interval of a week, repeat the doses. It is best to do this in the spring, as by that time the crop of bots is nearly grown. I believe that some preparation of iron, if freely given, would clear horses of bots; for at the Raleigh Springs, in Augusta County, Va., my attention was directed to the fact, that the horses of visitors after drinking, for two days, water from these springs, which is very strongly impregnated with iron, voided large numbers of dead bots. I have relieved horses that I believed were suffering with bots by a drench of sweet milk and sage tea. In experimenting on the bot, I found that one would die sooner if immersed in milk or sage tea than in nitric acid. The bot, when full-grown in its pupa state, will leave the horse preparatory to assuming the fly state. But when you give the horse *nux-vomica*, I have found that it soon passes out dead."

Gapes in Chickens.—W. M. Hawkins, St. Frances Co., Arkansas. The best way to remove gapes in chickens is to insert a feather (shaped for the purpose) in the windpipe, and with a twisting motion bring it with the worms, the cause, out of the windpipe. Occasionally kerosene is applied with the feather.

Trouble with Potato or "Multiplier" Onions.—B. Treat, Litchfield County, Dakota, complains that although he planted sound onions for seed, his returns were not more than double the seed planted. He states that his neighbors were troubled in the same way. As this trouble appears to be general, we should ascribe it to some peculiarity of the climate this season. We should prefer fresh seed for next year.

Artificial Fountains.—Subscriber, Berlin, Wis. Artificial Fountains can be constructed without very great expense, provided you have a sufficient supply of water higher than the base of your fountain. Otherwise you will have to force the water into a reservoir especially erected for the purpose, either in the house, barn or elsewhere. Ask a neighboring mason and a plumber for estimates of cost.

Pinching Raspberries.—M. E. Lacey, of Livingston Co., N.Y., wishes to know whether the laterals of raspberry bushes can be pinched off at any length desired, to prevent their taking root, without injury to the bush. Presuming that reference is made to black caps, unless you wish to propagate young plants, it would do no hurt to pinch them at the desired length; in fact, this is the method practiced by the most successful fruit-growers.

Breaking Sod.—Morris Haggar, Harrison Co., Texas, writes us: "In your June number, W. H. Ruffner wants an implement to break sod. Let him try this. Take two poles ten feet long, six inches through; split them in half; cut one into three pieces; lay the three remaining, at equal distances apart; now lay the three short pieces, one at each end, the other in the middle, flat side down in all. Pin these through the long pieces and wedge them. Put a chain from end to end in a bow and hitch a pair of horses or oxen to the center of the chain. Twice, or at most, three times going over, when the clods are in condition, will, I think, do what you want. Plank, three by ten inches by ten feet, will answer same purpose. This is better than any patent harrow, and cheaper 'on the wing.'"

A Slate Memorandum.—By forgetting to make repairs in season, or doing odd jobs when there is time, much is lost every year. A good plan is to hang up a slate in a convenient place in the kitchen, with a pencil attached so as to always be ready for use. Examine the tools and machines, and write on the slate what should be repaired, and what must be procured to repair them. Also make a memorandum of repairs necessary about the fences and buildings. As fast as these are done, erase the memorandum, adding from time to time others that may be needed. On the reverse side of the slate, plan out what chores and regular labor should be done, stating who is to do it. Have the boys, hired men and house wife, learn to consult the memorandum, so that each is informed about the labors of the others, and can mutually assist whenever required. In a little while, the vexatious phrase "I forgot" will be heard no more, and the odds and ends of farm duties and labors will be as carefully attended as the general work.

Trouble with Tomatoes.—L. Desol, Nez Perces Co., Idaho, writes us that his tomato plants, which grew well at first, begin to show some disease, which appears in the upper leaves, which turn yellow, and so on all the way down to the root, and the plants finally die. The leaf sent as a sample, in its dry and brittle state, when examined by the microscope, shows no traces of fungi, which we should suspect as the cause. His neighbors know nothing of the trouble. Our correspondent does not state what is the variety of the tomato, or if all are affected alike. Upon the supposition that the trouble is due to a fungus, it will be well to dust the plants freely with flowers of sulphur. If this does not check it, and the plants appear likely to die, we should pull up and burn them, to prevent the spread of the trouble, if it be due to a fungus. At the East a rot attacks the fruit, but this appears to be something different. Next year try another variety from a different source, and plant in a place remote from the one where they grow now.

The Cellar for Wintering Flowers.—To the lover and grower of flowers, whether in the window or open ground, a cellar is of great help. It must be an old-fashioned cellar; not one made hot and dry by a furnace. The cellar should have a temperature of about forty degrees, and be only moderately lighted. It must be—above all else—frost-proof; double sashes will be useful in severe localities. A cellar is a useful place for storing plants that have been used for the decoration of the garden and veranda in summer, and are too large to be kept in the house during the winter. The stately Agave, or Century plant, and the nearly hardy Palms, may be stored here for the winter, as may Oleanders, and the summer-blooming Fuchsias, which keep dormant during the winter; geraniums and other bedding plants, which it is desired to keep over; also, Dahlias and other tender roots. As an annex to the window garden, the cellar is of great service, as it answers as a store-room, and as a "potting shed." If the cellar is too warm or otherwise unsuited, an outside cellar, or large pit, may be constructed in a bank, securely timbered, or walled with stone, and furnished with double doors.

Ivy for the House.—If confined to a single plant for house culture, we should select the ivy. By this, we mean the true evergreen, European ivy, *Hedera*, and not any of the plants called Parlor, German, Colosseum, and other ivies. If ivy is to be cultivated in the coming winter, it should be prepared now. There are varieties by the dozen, but such is the confusion among them, that no two florists or nurserymen agree as to names. Select a free-growing kind, with pleasing foliage, no matter what it may be called. Plant it in good soil, made porous by sand; see that the pot is well drained. Give an abundance of water, but allow none to remain at the root, and it will grow. If rooted plants are not procured, cuttings will answer as well. Procure a branch from a neighbor's vine, and pot it as if it were a rooted plant. The ivy may be trained around and over window frames, doors, or upon wires, upon picture frames and mirrors in a highly decorative manner; it will grow well if it does not have strong light. It needs a little attention in keeping it free of dust. The leaves should be wiped with a damp sponge or soft cloth once a week, and it will be well to cover the foliage, when the room is swept, with a light cloth, or even newspapers will answer, to protect it from dust.

Holland Bulbs.—Each autumn the seedsmen receive their consignments of Holland, or, as they are often called, "Dutch bulbs." These consist of Hyacinths, Tulips, Narcissuses, Crocuses, Snow-drops, and others. These are planted to bloom in the open ground early next spring, or they may be potted to flower in the window or greenhouse during the winter. The earlier the bulbs are planted, the better. When a bulb is set out in the warm soil, it commences to form roots, and by the time cold weather comes, the bulb will have formed an abundant cluster of roots; in this state it remains dormant all winter, ready to start at the other end, and throw up leaves and flowers at the top of the bulb. Success with potted bulbs, depends upon their being well-rooted before the growth of leaves, etc., begins. To secure this, the pots should be in a cool, dark place for several weeks after potting. A dark cellar or cold-frame will answer, or the pots may be set in a sheltered place and covered with a bank of coal ashes, first placing boards or other material over the pots, to keep the ashes out of the soil in them. By bringing a few pots at a time to the light and warmth of the window, and giving water, a succession of bloom may be kept up through the winter months. When the flowers begin to fade, cut away the cluster, but allow the leaves to remain until they begin to fade and turn yellow,, when the pot may be removed to the cellar, and allowed to dry off.

Forcing Hardy Plants.—By "forcing," is meant the causing of a plant to flower, or otherwise perfect itself, in advance of its regular season. Take rhubarb as an example; all the latter part of summer, the plant has devoted itself to preparing its large buds, ready to expand early next spring. If we take up a root this fall, place it in a greenhouse, or set it in a barrel by the side of the furnace in the cellar, the buds made ready for next spring, will be started into a premature growth, and produce stalks and leaves some months earlier than it would naturally, the rhubarb being forced by the unseasonable heat. Rhubarb may be forced very readily, if one has a greenhouse; a few roots set under the benches, will soon give a family supply. In the absence of a greenhouse, roots set in casks or boxes, and covered with soil, will produce equally well if kept in a warm place. Hardy flowering plants may be forced in the window. Take up a good plant of the "Bleeding Heart," *Dicentra spectabilis*, pot it well, and allow it to rest in the cellar until after the new year. Bring it to the window, water gradually, and the graceful clusters of flowers will soon repay the trouble. That charming little shrub, the Dwarf Deutzia, *Deutzia gracilis*, forces admirably; it is well to grow some small plants expressly for this purpose. The white-flowered *Astilba Japonica*, incorrectly often called Spiræa, is most useful for forcing as a window plant, and very many other kinds of hardy garden flowers may be forced by lifting them early, and giving a good rest on a shady place before they are started into growth.

Animal Ailments.

Paralysis in Pigs.

Paralysis is one of the most common ailments among pigs. The animal is unable to use the hind legs, and drags them along on the ground, moving only by the aid of the fore legs. This is the only symptom of disease; the pig eats and seems free from pain, as it really is, because paralysis is a suspension of the nervous action, and, of course, the parts affected are without sensation. This disease is supposed to be caused by the presence of worms in the kidneys, and in some cases it is undoubtedly due to this cause. But the kidney-worm is very rarely found in swine, and never without the presence of the eggs in the swine, in which they may be discovered by the use of a small microscope, or a powerful magnifying glass. This worm, *Stephanurus dentalus*, is from one to two inches long, and no thicker than a fine fish-line. It inhabits the liver mostly, and the fat along the spine, as well as the kidneys, and has been found in almost every part of the animal. But unless the eggs can be found, some other cause is to be attributed to this trouble.

PARALYSIS IS A NERVOUS DISORDER, due to indigestion and lack of nutrition. The frequent use of sour food, or food even more seriously decomposed than this, and the want of fresh vegetable aliment, such as grass, clover or roots, are the prevailing causes of this condition. Another cause is the general gluttony, which is encouraged by overfeeding; even the very young pigs, which are permitted to gorge themselves with sour milk until sometimes they turn from the trough, give a sudden squeal and die instantly from suffocation, by the pressure of the distended stomach upon the lungs. The system becomes too plethoric or weakened by this overfeeding; the brain is congested; the spinal cord also is affected, and there is inflammation of the meninges, or covering membrane of the spine, or, perhaps, the brain as well, with effusion of serum, and pressure, and the lumbar nerves which control both the digestive organs, and the muscles of the loins and hind limbs are paralyzed.

THE REMEDY is to stop the cause. To reduce the feed or wholly suspend it for a few days, giving only pure water to drink, or very thin, well-boiled gruel, with half a teaspoonful of sulphate of iron, and as much powdered Peruvian bark in each drink, given only once a day. Rest of the stomach and other digestive organs is the best cure, also simple tonics, to aid recovery. A mild blister, or mustard or turpentine, applied to the loins will be helpful, but no remedy avails unless the cause is removed.

A Horse Going Lame from Casting a Shoe.

Frequently while driving a horse over a rough road he will cast a shoe, and before reaching home or the next blacksmith, will go lame. If the foot be examined it will be found hot, and tender to the touch, and the horn of the hoof, where the edges have come in contact with the ground, turned up and ragged. The cause of the lameness is due to the separation—imperceptible, perhaps—of the lamina or layers of the horny hoof. The treatment consists in rest and the removal of the rough, jagged edges of the hoof with a good horse-shoer's rasp, such as should be on every well-ordered farm. If the tenderness persists, let the horse stand with his foot in a pail of warm water. The horse may be shod in a day or two.

Sprains.

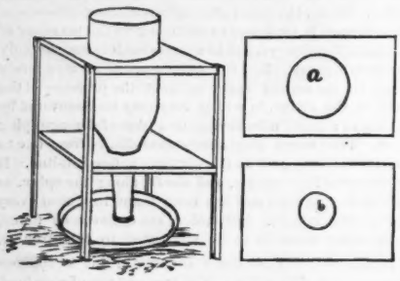
Sprains are the result of severe overexertion, or sudden muscular action, as in taking a misstep when fatigued, and consequent inability to rapidly recover the equilibrium. They occur commonly in positions where tendons play over bony processes, but it is possible for them to occur in nearly any situation. The symptoms of a sprain will be inflammation, heat, swelling, pain, and tenderness over the part, and lameness. The treatment is local, and consists in rest, the part being placed in the position which most relaxes the injured tendon, and also in the application of lotions. The lead and opium wash is one of the best for this purpose. As a stimulating liniment, one part each of ammonia water and tincture of capsicum and two parts of soap liniment is used with good results. Heat or cold, at once applied, greatly tend to diminish the inflammation.

Collar and Harness Galls.

Horses, hard-worked in the hot weather, suffer from galls and sore spots, which are extremely painful when rubbed by the harness. Many a horse is taught to become balky by the pain of such wounds, when chafed with the harness. The treatment of galls consists in cleaning the collar and harness, and softening them by thorough oiling and rubbing; by using only well fitting harness; by the use of sheepskin pads, with the wool next the skin, but covered with some soft linen cloth (the wool slipping under the pressure relieves the skin), and by applying calomel to the raw spot. This drug—a fine and very heavy white powder—dusted on the sore, with a soft feather or a puff of fine cambric, dries the surface, and forms a covering which protects it from the air.

Water for Poultry.

William Fairfield, of Barnstable Co., Mass., finds the arrangement illustrated herewith to be a good way to keep water for poultry clean. It is made of three pieces of board, five by seven inches each; one, cut like *a*, for the top; the second, like *b*, for the middle, and the bottom one left plain to set the



WATER BASIN FOR POULTRY.

dish on. These are fastened together at the sides with pieces of lath. He uses a quart bottle and a common saucer, put together so that the nose of the bottle will be just below the top of the dish; also one for each pen of sixteen fowls, and fill twice a day.

Harvesting and Storing Sweet Potatoes.

JAMES FITZ, ALBEMARLE CO., VA., AUTHOR OF "SWEET POTATO CULTURE."

A correspondent from Wisconsin makes the following statement: "I raise a good many sweet potatoes, and have kept them perfectly sound through winter by digging promptly after the vines are frosted [we and others say, dig sweet potatoes before the frost kills the vines]; spread thinly in an airy, dry place, where they will not be chilled, leaving them for a couple of weeks, or until they are perceptibly wilted; then wrap all those which are an inch through or upward in papers, and pack them snugly in barrels, and place them up stairs, near a chimney, in a room where it does not freeze. The small potatoes I pack in sand which has been dried in a kiln or oven, and set them in a similar place."

Mr. J. B. Wallace, of Chico, Wise Co., Texas, gives his mode of keeping and storing sweet potatoes as follows: "I think the most essential thing is to dig them at the proper time, and I think that time is about the full moon in October—that is, in Texas. No matter about the weather, unless the ground is too wet. I never wait for frost; but if frost comes before the full moon, dig as soon as possible, or at least before any rain. I dig with a bull-tongue plow; but anyway will do, so they are not cut or bruised. In gathering them sort out the cut ones, but before putting up let them have at least one day's sun; if the ground is wet, two days or more is better, but in no case let them take the dew at night. I put them in a shallow cellar, say from three to four feet deep, under some house. After they are put away, throw a little fine, dry earth over them—just enough to dust over the cut potatoes, if there be any. This will cause them to dry and not commence rotting. Let them lie that way till the weather begins to turn cool; then cover up as the weather gets colder, until they are covered from ten to twelve inches deep. In all cases cover with dry earth. I differ with those who want straw or leaves under potatoes; I want them on the ground, where they will keep plump and sound, and the protection from frost will be equally good.—[It is not probable that Mr. Wallace attaches any importance to the "sign" of the moon, but gives the "full moon" in October, as a suitable average time for his locality.—ED.]

"When they are bulked or pitted out of doors they should be on an elevated place, or throw up the earth so that water will not stand about them. Place the potatoes on the naked ground—about thirty or forty bushels in a bulk; set up corn stalks or similar material around them; then spread some dry grass or leaves on top, and bank up enough soil to this covering to hold it on. Let them stand that way till the weather begins to get cool; then commence to cover deeper. When the weather becomes very cold, they should be covered with soil to the depth of at least twelve or fifteen inches, but in warmer weather they should have a little air at the top. In all cases have them well sheltered; a very small leak will ruin a bulk of potatoes. This is my experience of twenty years in Texas."

We endorse most of the above directions. Doubtless, for the climate of Texas, the plan of Mr. Wallace works well. Perhaps in colder regions deeper covering and protection from extreme cold would be necessary.

It is always best to dig sweet potatoes before the frost kills the vines. Select, if possible, a dry time for this work, and, in storing for home use or for market, we repeat, be sure the potatoes are as free from moisture as possible. No vegetable will rot sooner from dampness or wet than the sweet potato. Attend to this: secure them from freezing, and they are generally safe.

H. M. Minster gives the following directions for keeping sweet potatoes. His mode, doubtless, is good, especially for saving them for home use; and we believe, as he says, they may be kept from year to year in those warm newspaper beds, even without being near the stove pipe, in some southern sections. It might not be practicable or convenient to adopt this plan where large quantities are raised for market. He says: "I give my mode for saving sweet potatoes. I have a drygoods box which holds twelve or fifteen bushels of potatoes. I set this box against the stove pipe up stairs. Line the box inside—bottom, sides and ends—to the top with

A LARGE MOUNTING-BLOCK.

twelve to fifteen thicknesses of newspapers, carefully breaking the joints. The box is now ready for the potatoes. Dig them when ripe, and before they get injured with cold in the patch; take them up stairs. You can let them lay a few days before placing them in the box, or put them in as you take them up if they are dry. Do not put anything on top of the potatoes, except the lid of the box, and that must not fit tight until cold weather. You can easily tell if the lid is too close, as the potatoes will sweat, and moisture gather on the under side of the lid and even on the potatoes. I have kept sweet potatoes in this way perfectly sound from year to year. They are so fine when vegetables are scarce; they can be cooked in various ways, and everybody likes them."

Ring for Hitching Post.

A convenient arrangement for a hitching post is shown in our engraving. Instead of making the ring closed, make it open, as shown. Then a bridle rein can be slipped in. Some persons never can learn to tie a horse securely. If such rings are used, a loop can be made with a strap and buckle, on the hitching rein or halter strap, and this loop

RING FOR HITCHING POST.

passed through the ring, making the horse secure. Of course this ring has all the advantages of the closed ring. The parts should be one-third of an inch apart; then a strap will slip in easily and no horse can nose it out. Any blacksmith can make the ring and staple. Have the two made together. The staple should be made with a deep thread, and screwed into the post while red-hot.

A Convenient Husking Stool.

Our illustration represents a very comfortable and light husking stool; it is made long and wide enough to hold a sheaf of stalk, and is provided

HUSKING STOOL.

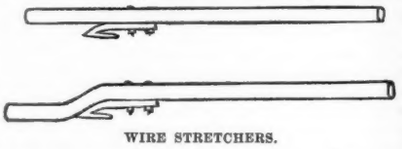
with a seat, or may have one on each side, if desired. If one can procure some crooks of cedar or other light wood, such as is used in rustic work, they will serve very well for the ends. The seats may be removed when the stools are not required, and may then serve for benches in the dairy or for household purposes.

Convenient Mounting-Block.

Every country church should have a mounting-block, such as is shown in the illustration. It is made twelve or fifteen feet long, allowing a vehicle to be at each side and at the end at the same time. The church walk should extend to it; then the women and children need not get wet, muddy feet, if the ground is soft. Soiled skirts and spoiled tempers will be saved, and the old people especially, will be thankful for the kindly thought that has provided them with an easy means of gaining their vehicles—very likely to be spring or heavy wagons difficult to clamber into from the ground.

Simple Wire Stretchers.

W. R. Benjamin, Mc Lean Co., Ill., sends us a sketch of an easily made wire stretcher, which he



WIRE STRETCHERS.

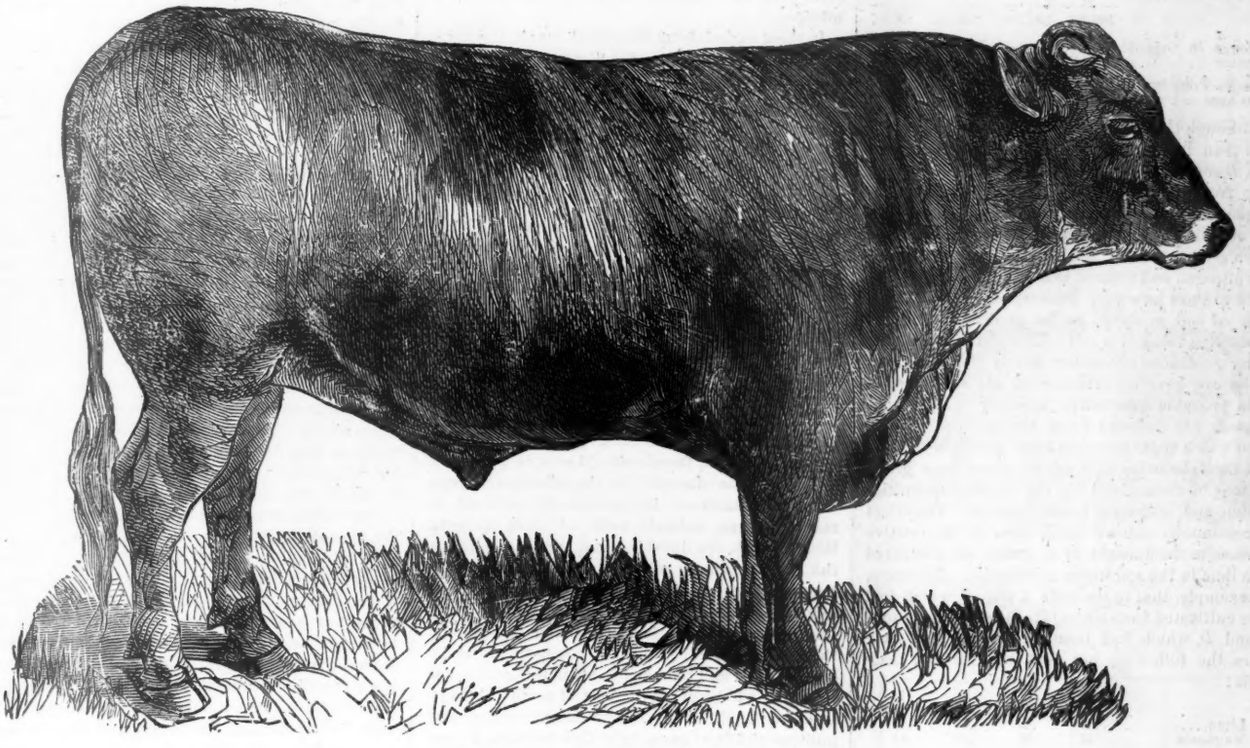
finds very useful. The implement consists of a mowing machine knife-guard, bolted to a stout stick; one curved, as shown in the lower engraving, is preferable to a straight one, as it will not turn in the hand. When using it, the wire is held firmly in the slot, and may be easily stretched by applying the stick as a lever.

ECONOMY IN THE POTATO FIELD.—In digging and storing potatoes, much labor and time is often lost by not having convenient appliances. The method usually followed in Lancaster Co., Pa., has several points to recommend it. J. H. Mayer, our correspondent from that county, writes us, that the farmers there plant their potatoes in long rows, dig them with a shovel-plow and harrow the ground afterwards. Fertilizer bags are placed along the rows, and into these the potatoes are emptied from the baskets as they are picked up. In the evening they drive close along the line of bags, load them in the wagon, and bring them to the cellar where they are emptied. The small quantity of soil which is carried along with the potatoes so handled is considered rather favorable to their keeping. The assorting is done during winter, or at times when other work is not very pressing. Some farmers use a screen made of laths, or a perforated rotary cylinder, for separating the fine soil and the small tubers from the marketable ones.

Swiss Cattle.

We are apt to speak and write of Swiss cattle as if there were but one race known among the verdant valleys and alpine pastures of the brave little republic. In reality, there are two or three distinct types and many strains exhibiting quite distinct characteristics, each peculiarly at home in some particular canton or valley, or part of a canton. As we remember them, they possess two characteristics common to all—namely, good milking qualities and coarseness of bone. They are of various colors; some, much broken with white; some are very large, fully equaling in size the largest Shorthorns. As a rule, the horns are short, if not small—though we believe some of the breeds of the southern cantons, near the Italian or Piedmont frontier, have long, slender horns, somewhat like those of the Italian breeds. In the mountain cantons, the cattle are stabled in winter, and as soon as the herbage is fit for pasturage upon the Alps, which is almost as soon as the snow melts, they are driven thither. In Switzerland, an "Alp" is a high hill or mountain, covered with soil and adapted to pasturage. The Alps are often round topped and in summer free from snow. They are kept moist by the mountain mists formed by the snowcapped peaks about them, and by occasional showers. The outside world calls the peaks or "horns" Alps, but the true Alps are the mountain-top pastures, which in some cantons are abundant and beautiful. Among them are the dairy houses and shelters for cattle, and here the herdsmen and women pass the summer in cheese and butter making, following the most primitive methods. Many of the cows carry large bells of a peculiar egg shape attached to bands, often six or eight inches wide and elaborately ornamented, placed about their necks.

The Swiss cattle with which we are more or less familiar in this country, are of the mountain breed; are of solid brownish-blue or bluish-brown color. They are often called "Brown Swiss," yet many of them are distinctly blue, approaching some Jerseys in color, which are called gray. They have good forms, but heavy in the head and neck, with straight backs and rounded rumps; incline to take on flesh; are coarse in the bone; have mellow hides, heavily coated and unctuous to the touch. In size they are about medium. The cows are well uddered, the teats large and well placed, and they are deep and persistent milkers. The breed has become a favorite for milk and cheese wherever introduced. The portrait of the young bull which we present, shows the external appearance of the breed—its stocky build, low brisket, abundant dewlap, well sprung ribs, low flank and full crops—the whole frame and style of the animal indicating a hardiness and strength of constitution, which will render the breed valuable wherever used.



TYPICAL SWISS BULL.

Engraved for the American Agriculturist.

Sorghum.—Soil and Climate.

DR. PETER COLLIER.

Concerning these important matters we are only able in a general way to state that sorghum demands practically the same conditions of soil and climate that are found to give good results in growing Indian corn. But to this general statement certain modifications are necessary, since it has been well established that, provided the sorghum crop gets a fair start and attains a height of about two feet, it is thereafter capable of withstanding a drouth, which would be sufficient to entirely destroy the crop of Indian corn. This was especially noticeable in the season of 1881, when the corn crop of the Atlantic States was, over large areas, a total failure, owing to the severity of the drouth, but the sorghum crop suffered only in the yield of stalks per acre, while the content of sugar in the stalks was unprecedentedly large. This accords with the experience in those countries where sorghum has been grown from time immemorial. Charles Masson, who resided in Central Asia from 1827 to 1838, states, in Vol. I., p. 347 of his narrative, that at Bagh, in north-eastern Beloochistan, "juwari (the East Indian name of sorghum), and bajara, here, as throughout the province, are the principal objects of the agriculturist. The preference shown to them would seem to show that they require little moisture, and that experience has proved them to be adapted to the soil and climate. Both man and animal subsist upon them, and they are grown in such quantities as to be largely exported."

The Professor of Agriculture in the University of Moscow personally informed the writer that, in Turkistan, sorghum was the main cereal; as, owing to the excessive drouths prevailing there, no other cereals could be successfully grown. From the above testimony it would appear that sorghum will be found especially adapted to large areas in our Western States, where the rainfall is limited to the early part of the season, and summer drouths forbid the growing of wheat and corn. The testimony of many farmers in the Far-West is confirmatory of this.

It has been already mentioned in the *American Agriculturist* for April, that all those varieties of sorghum grown in the United States and found to be valuable as sugar-producing varieties, were originally obtained from temperate climates in Asia and Africa, and it at present remains an open question what the effect would be of growing sorghum for sugar in tropical or semi-tropical countries. Thus far there have not been any careful experiments made to test this question in our Gulf States, where undoubtedly heavy crops of cane could be grown, but whether so rich in sugar as is the cane grown further north, is a matter of doubt, which should now be definitely determined. Concerning the character of the soil best adapted to the cultivation of sorghum, we can regard little as being definitely established. Thus far the experimental testimony is conflicting, and opinions rather than sound conclusions prevail. The chemical constitution of the soil; its mechanical condition, and the proper fertilizers to be employed for the increase of the crop and its content of sugar, are matters of greatest practical value, but are yet to be determined by careful experiment and observation.

In the following table are given the analyses of several specimens of soil upon which the amount of sorghum grown was determined.

A is the analysis of the soil upon which the several sorghums were grown, the analyses of which have been given in the preceding papers. The average crop of 37 varieties of sorghum grown upon this soil was, in 1880, $15^{7}/_{10}$ tons of stripped stalks per acre.

B is the average analysis of four soils, two from New Jersey and two from Kansas, upon which the average crop of stripped stalks was 5½ tons per acre.

C is the average of four soils, two from Kansas

and two from New Jersey, which yielded an average crop of 8¼ tons stripped stalks per acre.

D is the average of four soils, two from Kansas and two from New Jersey, which yielded an average crop of 13¼ tons stripped stalks per acre.

The above crops were all grown the same year, and the samples of soil were taken at nearly the same time, and being from widely separated sections, increase the value for purpose of comparison.

	A.	*B.*	*C.*	*D.*
Water	1.140	.560	.300	.478
Organic Matter	5.690	4.343	2.655	2.760
Insoluble	84.670	88.331	92.426	91.315
Ferric Oxide	3.440	2.594	1.789	2.220
Alumina	4.360	3.035	1.918	2.069
Lime	.860	.451	.466	.531
Magnesia	.367	.414	.253	.271
Potash	.394	.320	.235	.255
Soda	.023	.021	traces	.016
Phosphoric Acid	.265	.043	.030	.035
Sulphuric Acid	traces	.015	.039	.009
Chlorine	.009	.022	.011	.008
Carbonic Acid	traces	traces	.033	traces
	100.218	100.159	100.155	99.967
Nitrogen in Organic Matter	.146	.124	.083	.081
Average Tons Stalks per Acre	15⁷/₁₀	5½	8¼	13¼

Although there was much more phosphoric acid in *A* than in either of the others, it will be seen that *D* contained even less than *B*, and yet the crop from *D* was much greater. So, too, the nitrogen in *B* was about the same as in *A*, as also the organic matter, but the yield of *C* and *D* was much greater than of *B*, although they contained less nitrogen and organic matter. The above will serve to show how very unsatisfactory are the results of soil analysis, so far as determining the productive value of a soil. The above soils were under conditions of culture nearly the same, and to the eye gave no evidence of any difference in their probable productive capacity. Dr. T. L. Phipson has deduced from the analysis of soils upon which sugar cane has been grown in Guiana, that the exhaustion of a soil by sugar cane growing may be determined by the relative quantities of lime and magnesia found present. The effect of continuous culture being seen in the relative increase in the amount of magnesia as compared with lime in the soil under cultivation. He shows, for example, that in the soils *A* and *B*, which had been cultivated from ten to fifteen years, and in soils *C* and *D*, which had been cultivated over sixty years, the following per cent. of lime and magnesia:

	A.	*B.*	*C.*	*D.*
Lime	.44	.64	.11	.40
Magnesia	.32	.50	.36	.51

It is at least interesting to observe, that of the thirteen analyses above given, each show the same to be true as to sorghum, and with but a single exception, the weight of crop obtained was in proportion to the relative excess of the lime over the magnesia present in the soil. This is a matter of such great practical value, that it is important that further investigation of this point be made; since, should this be found true, it might be easy to apply an economical remedy for soils thus exhausted. Especially would it be well to try the effect of the thorough and continued application of the various lime fertilizers, as superphosphates, gypsum, quick-lime and powdered limestone.

By far the most satisfactory work thus far done in experiments upon the effects of various fertilizers on the sorghum crop, is that done in New Jersey last season, under the direction of the Experiment Station, Geo. H. Cook, director. By the use of various fertilizers, the average cost per acre of which was $7.56, he found upon twelve plots an average increase per acre—due apparently to the use of the fertilizers—of eight and a quarter tons of unstripped and untopped stalks, and an average increase in the total sugar present in the several crops, of 1,488 pounds per acre.

In one of the experiments it was found that the application of seventy-five pounds of muriate of potash per acre, costing $3.00, resulted in an increase of 9.42 tons of stalks, and of 1,675 pounds of sugar per acre. Owing to the importance of these results, it is unfortunate that but a single unfertilized plot was reserved for comparison, since the crop on this one plot is taken as the standard for all the others, and it might happen that some local cause operated unfavorably on this particular plot. It is to be hoped that these experiments are being carried forward the present season, and that the valuable results of last year may be fully confirmed. The following conclusions are drawn by Professor Cook from his experiments:

First.—In nearly every case the yield of sugar per acre was doubled by the use of either nitrogen, phosphoric acid, or potash; in one case the increase was 15.7 per cent.

Second.—Of all the elements, potash, in the form of muriate, exerted most marked effect upon the yield of sugar per acre; its best results being secured when it was combined with nitrogen. In the form of sulphate, potash affected most favorably the yield of sugar per ton of cane; its best results was also secured when it was aided by nitrogen.

In these experiments the potash was in the form of muriate or sulphate; the nitrogen as nitrate of soda, and the phosphoric acid as superphosphate.

Heredity of Disease.

A. B. ALLEN.

It is the general belief, if either a male or female animal has met with an injury on any part of its body or limbs during the pregnancy of the female, this injury will never be shown by the offspring. But we have lately heard of several instances to the contrary, of injuries being fully transmitted, more particularly, however, from the female; so that they ought to be guarded against in breeding, as well as against disease in the parents. The latter is so generally certain to be developed in the offspring, all sensible persons agree that neither male nor female should ever be permitted to breed when diseased in the slightest degree. There are immense losses annually suffered in rearing young animals born of such parents. Heaves, curb, spavin, side-bone, and ring-bone, are the most ordinary ailments that are shown in horses, while scrofula develops most surely and disastrously in cattle. Parent animals of every kind should be in perfect health and condition at the time of breeding, and the young should be judiciously fed and attended to until full-grown, and then they will be fit for the best of service through an extra length of life. Our farmers would add millions of dollars annually to their incomes, if they would persistently adopt the above suggestion in breeding and rearing their domestic animals.

Feeding too Much Grain to Poultry.

Corn has long held the lead as a special food for poultry, and on almost every farm, if the hens are fed at all, it is with corn. It has served an excellent purpose, however, as the hens usually have free range, and supply themselves with those elements which are lacking in the fat-producing corn, which really does more to keep them in good flesh and condition than assisting in egg production. If grain is fed—and once a day is often enough if the fowls have the use of the range—it should consist principally of wheat and oats, with only a small proportion of corn. Laying hens should be fed differently from those intended for market, as in the one case, eggs are desired, and in the other, fat, or weight. A cow giving large quantities of milk does not readily fatten. A similar rule applies to the hen; a good layer does not fatten quickly during the laying period, and a hen that takes on fat, and eats large quantities of grain in preference to bulky food, is not usually a good layer.

What farmers should learn is, that hens ought not to be fed exclusively on grain, else they will cease to lay. They will keep in better health, thrive better, and become more productive when fed some bulky food, as boiled roots, steamed cut clover, short grass, or even well-cured corn fodder, though a small proportion of grain, with a little meat and milk will, of course, complete the ration. By regulating the food so as to combine the elements necessary for her purpose, the hen may be confined without detriment, while the profits will be much larger than when she is fed wholly on grain, and especially on corn.

Fowls—Keeping Large Numbers.

By careful feeding and proper care, a good laying hen may lay as many as one hundred and seventy-five eggs in a year, but when hundreds of hens are kept together on the farm, the average seldom reaches one hundred eggs per annum. A comparison of the treatment accorded large and small flocks shows that, as a rule, the smaller the flock the greater is the variety of food furnished to the individual, while the competition for existence is increased with the number of hens in the same flock. Division into families seems to be a natural and necessary condition of all animals, and though congregating and herding for mutual protection, they pair and separate during the breeding seasons. It is unnatural for poultry to be kept in large numbers together, especially during the times of laying and hatching. The small flock secures generally all the scraps from the kitchen and the table, and, as a rule, these contain a larger share of the nitrogenous elements (meat, etc.), than is generally fed to large numbers, which partially accounts for the greater production of eggs from the smaller flock. With a large number, the cost of labor is lessened proportionately, and as but few really estimate the labor of caring for a small flock, the keeping of strict accounts, charging labor as an item would demonstrate, that there is not such a wide difference in the proportionate profit as may be imagined; yet, as the labor is of but little value until the flocks are large, it is safe to admit that small flocks are more profitable.

The capital necessary for keeping 1,000 hens need not exceed $3,000, and even less will answer, yet but few would be satisfied with a profit of only twenty-five cents a year from each hen, although it amounts to $250, or over eight per cent. Fifty cents per hen annually is not considered an extravagant profit, and it is conceded that a hen should pay one dollar. It depends, however, entirely upon the management, and not the amount of capital. If a large number be so managed, that eggs and chicks are marketed, and the expenses be brought to a minimum, the capital invested in poultry will bring a large dividend. If a small flock can be made to give a large profit, a number of small flocks should be managed in the same manner and with proportionate results. Properly managed poultry pays better profits than any other farm stock, but it is unreasonable to expect poultry to return in one year the entire capital invested.

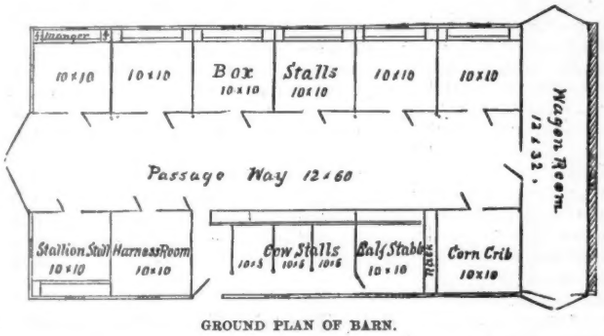
ENSILAGE FOR THE SOUTH.—Perhaps there is no other part of the Union, where the preservation of green fodder, by means of the silo, can be made more useful than in sections of the South. Haying comes very early, and in the very worst season of the year for rains, viz.: the early summer; making the curing of clover and grass exceedingly troublesome. The present season it has rained almost without intermission for more than twenty-four hours, during the most of May and all of June, and to put up several acres of heavy clover and grass, has been a serious labor. With a silo it would have been no trouble at all; the grass cut during the few hours of sunshine could have been put into the silo, and the work of haying would have been done with. With the extreme facility for growing such an abundance of fodder as may be found in the South—clover, grass of various kinds, cow-peas, millet, corn, and one following another through a long season, the silo seems to be the very thing that is wanted. The Cow-pea, so valued in the Southern States as a fodder plant, promises to be of the greatest value as ensilage.

A General Service Barn.

The accompanying illustrations represent the barn of Mr. S. D. Goff, Clark Co., Ky., recently built by Mr. T. T. Templin, who writes us that it is intended for a farm of from 100 to 150 acres, and that it is answering all purposes satisfactorily.

It is 72 feet long, 32 feet wide, and 18 feet high to the eaves. There are six box-stalls, 10 by 10 feet, each containing a manger and two feed-boxes. All the stalls are wainscoated to the height of three feet six inches, the upper part is lattice work. The harness-room is 10 by 10 feet, and from this, stairs lead to the upper floor. From the corn-crib a box projects into the passway, so that corn may be taken out without entering the crib. The wagon-room is 12 feet wide, and has a feed-box and rack running its entire length, so that mules or cows may be sheltered there in stormy weather. On the second floor are bins for oats and bran. A hay-fork, which may be moved through the entire length of the building, is used for unloading and mowing hay. The entire cost of this barn was eight hundred dollars, but of course this may vary considerably in different localities, according to the local prices of labor and material.

A KENTUCKY GENERAL SERVICE BARN.

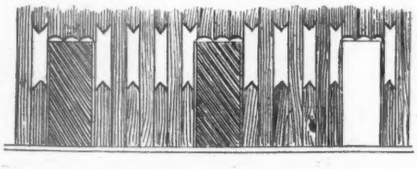


GROUND PLAN OF BARN.

Sowing Seed Broadcast.

Sowing seed or fertilizers broadcast evenly and accurately by hand, bids fair to become one of the lost arts. This is much to be regretted, for there are still a million or more farms in the United States alone, where no drill is used, and on nearly every farm, more or less grain, clover and grass seed, turnips, millet, etc., are sown broadcast to some extent every year. The art of sowing cannot be taught on paper, but one or two suggestions may be useful to young farmers.

The common way of sowing grain is from a two-bushel bag, the lower corner and upper corner



FRONT OF BOX-STALLS.

tied together, and the bag resting on the right shoulder and hanging under the left arm. The mouth of the bag is held open with a stick stretched across, or with the left hand alone. After you have taken out a handful of grain from the bag, you commence to swing your arm from right to left and let the grain gradually escape by opening the fingers, and at the same time you step forward. You swing your arm while the right foot is stepping forward, and get another handful out of the bag while you take a step forward with the left foot. A very common practice in sowing is to let your hand drop down as low as your hip. No man who does this can sow turnips properly. When the hand leaves the bag, swing it back with arm outstretched, level with the shoulder, and swing it round at full stretch until it comes nearly to the other shoulder; in other words, keep the hand at the same distance from the ground during the whole sweep. If you start sowing from the hip, and gradually raise your hand until it gets as high as the left shoulder, the seed that first leaves your hand, will strike the ground perhaps not more than a yard from your feet, and it will not be evenly scattered.

We tested three or four men to see how much one of their "handfuls" of wheat weighed, holding merely as much as they would naturally do in sowing. The average handful was three ounces. This is three hundred and twenty handfuls in a bushel of wheat.

In sowing broadcast, every time the right foot strikes the ground, we sow a handful of wheat—or, three ounces. If the breadth of land covered is five yards wide, and you step one yard at each step, each handful of wheat is scattered over ten square yards of land. This is at the rate of one bushel and a half, or ninety pounds of seed per acre.

If the breadth covered is four yards wide, and you step one yard as before, you sow at the rate of one hundred and thirteen pounds, or a little over one bushel and three-quarters per acre. If the breadth covered is six yards, and you step one yard, you sow at the rate of seventy-five pounds per acre, or one bushel and a quarter. If the breadth covered is seven yards wide, you sow sixty-five pounds, or one bushel and five pounds per acre. If you cover seven yards, and step a yard, each mile you walk sows a little over two and a half acres. If you cover six yards, each mile sows a little over two acres. If four yards, each mile sows a little less than one acre and a half.

With a bag of wheat on the shoulder, few men want to step a yard. Stepping two and a half feet, and covering four yards and holding, as before, three ounces of wheat in each handful, you sow one hundred and thirty-six pounds, or two and a quarter bushels per acre. Stepping two feet and covering four yards, you sow one hundred and seventy pounds, or nearly three bushels per acre. The boys can easily figure this matter out for themselves. This may seem a trivial matter, but it is of as much importance to sow the proper quantity of seed by hand, as when a drill is used.

Prairie Granary.

Prairie farmers require a granary for the storage of their wheat before almost any other building. It is not an unusual thing for a farmer to lose more by being forced to sell his wheat too soon, than would have built a very good granary. A most convenient building for this purpose may be made as follows: A sufficient number of posts are set five feet high, and upon these strong sills are laid and a building erected in the manner shown in the accompanying engravings. Figure 1 shows the building complete; figure 2 is the plan of the bins; the small bins at the end being for seed. A wide passage serves for cleaning the grain, and a floor made five feet high over the bins will serve for keeping a fanning mill, bags, tools and other light matters. The bins have sloping floors, so made that the grain will slide to the spouts at the sides; from which it can be run into bags in the wagons. The spouts are closed by slides, which may be raised by a key passed through a small hole in the side; being hinged in the middle, as shown in figure 3. The hole is covered inside by a leather valve, which prevents the grain from falling through, and a wooden cover, held by a screw, outside. The slide inside has a hooked wire rod in which the key catches and by which it is raised as the key is turned, and as the rod has a reversed hook on the top of it, it is closed by the key as easily as it is opened. But it is best to have a short guide of bagging on the spout outside by which the flow of grain can be choked off as the bags are changed.

Fig. 1.—VIEW OF PRAIRIE GRANARY.

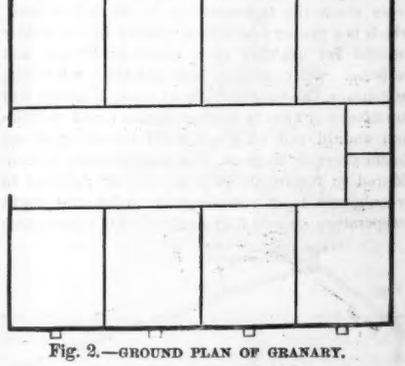


Fig. 2.—GROUND PLAN OF GRANARY.

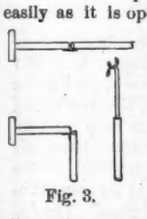


Fig. 3.

Whatever the construction of a granary may be, it becomes of primary importance to prevent the depredations of rats and mice. The waste caused annually by these pests is incalculable. When they have once burrowed beneath a building, it is almost impossible to dislodge them; it is therefore essential that there should be no hiding places near it.

Greenhouses for Forcing Vegetable Crops.

PETER HENDERSON.

Since "Gardening for Profit" was first published, larger experience of the last twenty years has shown that greenhouse structures for forcing vegetables can not only be erected cheaper when made twenty or twenty-two feet wide, instead of ten or eleven feet as formerly, but from the larger volume of air they contain, which, when once heated, better resists the outer cold, less artificial heat is necessary. So convinced were we of the advantages of the wider structure that, six years ago, we removed all our old eleven foot houses, covering nearly an acre in glass, and replaced them with greenhouses averaging twenty feet wide by one hundred feet in length. John Hudson, of Bergen Co., N. J., one of the most successful of the market gardeners in the vicinity of New York, constructed six greenhouses the past season, each one hundred and fifty feet long by twenty-two feet wide, plans of which are here given. The cost of these greenhouses complete, with ventilating and heating apparatus, benches, etc., was about $10,000, or about $10 per running foot. The structure, as seen in figure 1, is very simple.

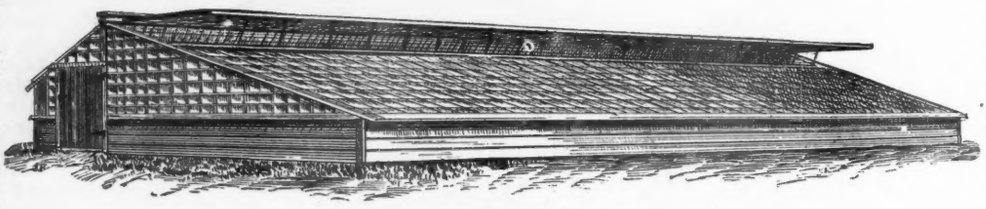


Fig. 1.—VIEW OF FORCING HOUSE.

The walls, front and rear, are constructed of common cedar posts, about five to six inches in diameter, placed four feet apart and sunk three feet in the ground. On the outside of these are nailed rough hemlock boards, upon which a layer of asphalt or tarred paper is tacked, over which is nailed the ordinary weather boarding. Such a wall will resist cold better than an eight-inch brick wall, and will last twenty-five years if kept painted. A very common error is to build the wooden walls of a greenhouse hollow and fill up with sawdust. This should never be done, as it is more expensive, and is by no means so good as the plan above given. It will be seen by the engraving, figure 2, that these greenhouses are heated with hot water. The six O's in the engraving representing six runs of four-inch pipe, which is sufficient to give a night temperature of forty-five or fifty degrees when the thermometer is ten below zero, which is a proper night temperature in the winter months for growing such crops as lettuce and radishes. Of course, in the day-time, when the sun shines, the temperature of such a house will run fifteen or twenty degrees higher; and ventilation should not be given until the temperature reaches seventy degrees. The great point to be considered in forcing crops of lettuce or radishes in greenhouses is, if possible, not to let the night temperature exceed fifty degrees. Of course, this

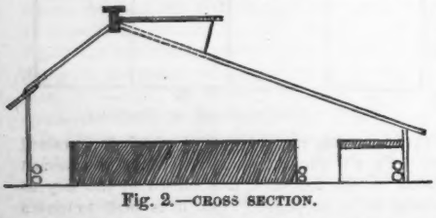


Fig. 2.—CROSS SECTION.

cannot be helped in the fall months, when the temperature outside is often much higher than fifty degrees at night; but in such cases, during the months of October and November, the ventilating sashes should be left up, so as to keep the temperature at night as low as practicable. Often the entire first crop of lettuce is lost for want of this precaution. Further experience has also taught us the necessity of using larger sized glass. The size most used is twelve by sixteen, put in the twelve inch way. The object of the larger glass is to obtain the greatest amount of light. In glazing, the method now almost universally adopted, is to bed the glass in putty and tack it on top with large glazing points, using no putty on top. The glazing points are triangular, one corner of which is turned down, so that when it is driven in, it fits against the lower edge of each pane, and prevents it from slipping down. A great mistake is often made in giving the glass too much lap. It should be given just enough to cover the edge of the pane from one-eighth to one-quarter of an inch. If given much more, the water gets between, and cracks the glass when it freezes.

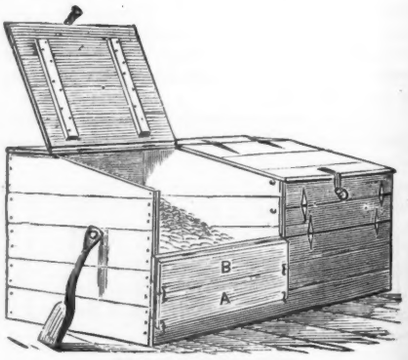
It will be seen that two of the hot water pipes are placed under the front bench. The other four are placed two on each walk. The front bench, four feet wide, is constructed so that it will hold five or six inches in depth of soil; but the middle or main bench, which is thirteen feet wide, requires to be walled up to a height of two feet—see plan—and filled up to the top with soil. The soil best fitted for the growing of lettuce is five parts good, strong, fresh loam to one part well-rotted cow-manure. I will give as nearly as I can our manner of operating. The first sowing of lettuce (which is mainly the Boston Market variety), made in the open ground about the 20th of August, will be large enough to be set in greenhouse benches, at six or seven inches apart each way, by the 20th of September, and will, without fire-heat, give fine heads by the 1st of November. For second succession, sowings are made still outside, about the 20th of September, to replant the space where the first crop has been cut out by the first week in November. As the season is now getting colder, the crop planted by the 1st of November will not be fit for market until about the Christmas holidays, at which time it usually sells well. For the third crop, to be planted in January, the plants made by the sowing on the 20th of September should be used. This crop, which has to be grown in midwinter, will not be ready, if planted the first or second week in January, until about the 1st of April. One of the greatest pests in growing is the green fly, or Aphis, and the remedy must be preventive, for if it once gets a foothold on the growing plant it cannot be destroyed. From its operations being mainly on the under side of the leaf nothing can reach it; consequently every germ of it must be destroyed before planting. Tobacco in any form is destructive to it. So, before planting, let the surface of the soil be sown over with tobacco dust, and also let the young plants be rinsed in water wherein tobacco stems have been steeped long enough to give it the color of strong tea. By using these precautions, there is little danger of the lettuce being attacked by the insect, although as a further measure of precaution, it will be well to strew the paths with refuse tobacco stems, which will make a complete antidote against the Aphis. There is another disease often affecting lettuce, with which, however, it is not so easy to cope. It is first seen by the leaves hardening and spotting brownish-red, then gradually decaying towards the center of the plant, until it partly destroys it. The cause seems to be anything that gives the plant a check, any too sudden change of temperature, too much dryness or too much moisture. There is, I think, no remedy after the disease has once started. So our efforts must be for prevention.

Mr. Hudson has used some of his greenhouses for growing the Scarlet Round Radish, which he finds less liable to disease. These are first sown about the first week in October, successive sowings being made on the same ground as each crop is marketed, which, according to the season, is from five to eight weeks from the time of sowing, three crops usually being obtained by the middle of March. The seed is sown thinly in rows, three or four inches apart, and the radishes are thinned out, when an inch high, to two inches between the plants. After the crops of early lettuce and radishes have been marketed (about the middle of March), the benches are again planted with Snowball Cauliflower at twelve or fourteen inches apart each way, which is marketed about the end of May, or two weeks before the outdoor crop is ready. Another, and often very profitable, use is made of these forcing greenhouses by packing large clumps of rhubarb or asparagus, lifted so as to leave the soil embedding the roots. These clumps may be set as close as they can be packed, about the middle of December, under the front bench, as they require no light, and will be found to be very profitable, the only cost being the roots, which can easily be raised, where ground is plentiful, in the open field by sowing the seed in rows.

It is not easy to estimate the profits on such an investment in forcing greenhouses for vegetable crops, as so much depends on what the market demands. Of course, all the products in such a market as New York are sold at wholesale, and not infrequently pass through four different hands before reaching the consumer; but even thus sold, it is safe to say that, with a fair average culture, such crops at wholesale rates will pay a clear, net profit of thirty per cent. annually; while there is but little doubt that if the consumer could be reached direct, at least twice if not three times that amount could be realized. The business is a particularly pleasant one, and has great advantage, in all respects, over the hotbed system, as one has complete control over the greenhouse temperature, both by night and day, if the heating and ventilating apparatus has been properly constructed. These greenhouses are also well adapted for raising all kinds of vegetable plants. For the past six years nearly all the cabbage, cauliflower, lettuce, and tomato plants have been raised in these greenhouses at far less expense than in the old-fashioned hotbeds. When the expense of hot water apparatus cannot be afforded, the same style of greenhouse can be heated by the horizontal smoke flue, costing little more than half as much as the hot water apparatus, which is about one-half the cost of construction.

Grain Bins with Fronts to Let Down.

One of the most convenient grain bins we ever used, was a large one constructed as herewith illustrated. The lid or top raised as usual; then, when desirable, the front top board, which was hinged at the bottom, and hooked inside at the top, was unlocked and let down. This gave convenient access to the bin both in filling and in emptying—enabling one to take out the last remnants of grain or meal.



CONVENIENT GRAIN BINS.

Picking Apples—Fruit-Pickers.

PROF. L. H. BAILEY, JR.

There are three things essential to safe and rapid apple picking: An ordinary light step-ladder, a couple of half-bushel handled baskets with a hook on the handles, and a smart boy who is not afraid to climb. The ladder is the least essential article of the three. If trees are properly trimmed they will allow a man with a basket to enter the top. An ordinary iron hook will serve to hang the basket on a limb while it is being filled. Apple limbs are strong and they will hold a boy or man more safely than is generally supposed. As a general thing a boy is afraid to venture far, but a little training will enable him to climb well. Nor is it essential that the boy should be exceedingly young and light in order to reach most of the apples on a high tree. It is quickness and agility, rather than lightness, that makes a good apple picker. I know from experience that a young man of twenty-five may be of more service in an apple tree than any number of fruit-picking machines. When one basket is full, it is handed down and another one returned. A bag strapped on one's back, in the manner used for sowing grass seed, is usually a nuisance in a tree, although it may be handy on a step-ladder. The more one practises the more he will be surprised at his ability to reach apples on the ends of limbs. There will be some, however, which he cannot reach. If a fruit-picker is to be used at all, here is the only place where it is necessary, in picking a few apples which have escaped reach or notice. For this purpose a cheap and simple picker may be made by bending a stiff wire into the form of a circle six inches in diameter, with one side of the circle prolonged three inches into a V-shaped projection. Upon this wire sew a cloth bag a foot or so deep, and fasten it on to a pole by the end opposite the V-shaped extremity. This V-shaped projection will serve as a corner in which to catch the apple and pull it off, allowing it to fall into the bag. An excellent picker, as shown in figure 2, can be made from stiff wire by a tinner. The span across the top should be about six inches, and the depth from eight to ten inches. The wires should not be more than a half-inch apart at their tips. The wires being more or less flexible, the apple is apt to draw through them if they are not close together. Care should also be taken to have the implement made as light as possible. A bungling mechanic will probably use too much solder. Another good picker is pictured in figure 1. It is light, durable and pleasant to handle. When, however, an apple, being very short stemmed, lies close to a limb, it is much more easily removed by the former device than by this. A simple, flattened hook, with a thin, almost cutting edge, secured on the end of a pole, figure 3, is often handy for pulling off stray apples. This is the best implement with which I am acquainted for thinning apples. One of the most successful orchardists I know, makes two or three tours of his orchard every week in July and August, and hooks off the wormy and ill-formed apples. A drove of hogs follow him, and devour the apples and worms. This practice of thinning fruit is a profitable one, especially in the instance of a heavy bearer, such as the Baldwin. If the tours of the orchard are frequent, the work of thinning is not burdensome, and will be repaid in extra prices.

Fig. 1.

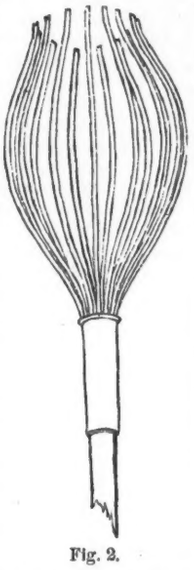
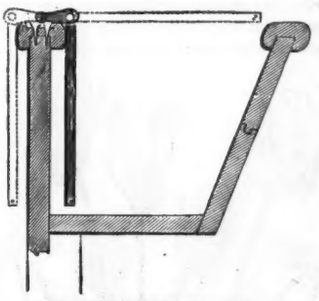


Fig. 2.

Fig. 3.



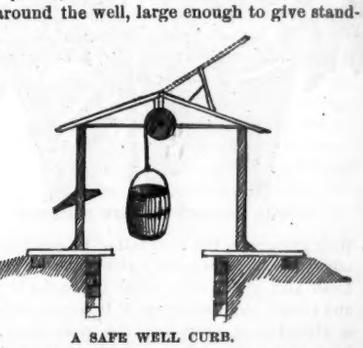
IMPROVED HORSE MANGER.

Good Horse Manger.

Horses will get their heads to the bottom of the hay manger if they can, and will often throw the hay out, if not prevented. The accompanying illustration is taken from a neighbor's stable, in which such annoyance is easily and simply prevented. A rack of iron rods, or of wood, is made and hinged to the top of the manger in front, so that it may be thrown up and over the front when the manger is filled, and then turned down upon the hay. The bars or rods are just far enough apart for the horse to get his nose through to the hay, but, of course, he cannot get his head through. Iron is better than wood, because the horse cannot gnaw upon it. The bottom of every manger should be slatted, to let the hay seed and dust fall through—a frequent source of cough and heaves in horses.

A Safe Well Curb.

The illustration herewith is intended to show an open well curb, which is safe against worms, frogs and other vermin; and also against the entrance of surface water, leaves and other trash. The wall of the well is carried up to the surface of the ground, and clean gravel is spread around it and beaten down firmly. A frame of four by four chestnut is then bedded down level with this surface and a floor of two-inch plank, with matched edges, is laid down, projecting a little over the raised gravel, as shown in the engraving. The ground slopes from the floor in all directions, and should be neatly sodded. The best covering, being indestructible, is a large flagstone; or, it may be made in several pieces, and bedded in mortar. The curb is built around the well, large enough to give standing room for the bucket at one corner; it should be no higher than is convenient to reach over it to use the bucket. A spout is fixed in the front into which the bucket is emptied without lifting it over the curb. The curb is protected on top with one fixed and one hinged wire gauze covered frames. The hinged one is thrown back and rests against a support, if desired (as shown), or it may fall entirely back upon the other one. This wire gauze admits air, but keeps out leaves and other trash which is blown about by the winds. An open curb like this, and thus protected, keeps the air in the well pure, the water clean, and in some respects is preferable to a pump.



A SAFE WELL CURB.

Fig. 1.

Slings For Hoisting Bags, etc.

When one has bags to hoist by a block, or simply by a fall, as we often have to, from the barn floor to the loft, rope or chain slings are almost essential. The simplest of all to operate is a sling formed on the end of the fall-rope, as shown in figure 1. This consists simply of an oak stick, half an inch thick, two inches wide and six inches long, having two three-quarter inch holes bored, one near each end. Through one of these the end of the rope passes, then it is drawn through the other and knotted strongly. The mouth of the bag being caught in the bight of the loop, it may be safely hoisted, for the greater the weight the tighter will be the hold.

Fig. 2.

Fig. 3.

Next to this, and still more convenient, is the chain sling, figure 2. The fall-rope is terminated by a chain, but with twisted links, which ends in a ring, and so a loop is made to take the bag, or simply the bag's mouth.

Like the rope-sling it will hold fast all the bags that it can be made to surround. For hoisting many bags at a time, nothing is more convenient and safe than an endless rope, figure 3, cut eighteen to twenty feet long, and the ends spliced together. This is laid upon the floor, forming a long, narrow loop; the bags are laid upon it, resting evenly on both side ropes, then the ends are brought together, one is passed through the other, so as to act like a noose, and hooked over the fall-rope which should terminate in a strong hook, as shown in figure 3.

The Window Garden—Begin Early.

Success in window gardening, as in other kinds of gardening, depends in a great measure upon beginning at the proper time, and with the proper materials. If one waits until cold weather, and then purchases plants at a greenhouse, he makes a bad beginning. The plants had already been in a much higher temperature than that of the window, and the change to a cooler place, and to a much drier atmosphere, gives them a check, from which they do not recover in a long time, and some remain in an unhealthy condition all winter. Some depend upon plants taken up from the borders and potted, to furnish the window. These are apt to delay taking them up until the cool nights have checked their growth, and when they are taken to a warm room the change is too sudden, and the plants rarely do well. If they are to be taken up from the open ground and potted, it should be done so early that they may recover from the shock of removal and become established in the pots before cool weather makes it necessary to take them into the house. There are several plants well suited to window culture that, were their good qualities generally known, we should see them more frequently than we now do. First and foremost we place the white-flowered Abutilon, *Boule de Niege*, the "Snow-ball Abutilon." For ease of culture, continuance of bloom, and all other qualities desirable in a window plant, it is difficult to find its equal. It may be grown in a bushy form, but it is better to train it in the shape of a tree, with a stem two feet or more high, having a head at the top. In this form it will stand up above other and lower growing plants with fine effect.

PERSIAN CYCLAMEN.

Among useful window plants, the Persian Cyclamen has a high place. It has a curious, much flattened stem, which passes for a bulb; the foliage is often handsomely variegated with light and dark green, and the flowers vary from white to rosy purple. The peculiar dwarf habit of the plant is very striking. Started plants may be had of the florists, and the "bulbs" are often imported with Holland bulbs. The stem or bulb should be half above the surface of the soil. It requires no special care in its culture, except to make sure that the soil has free drainage. When no more flowers are produced, the plant is allowed to dry off, and take rest by being kept dry until the following autumn. The Chinese Primroses should be favorite plants for the window. They are easily raised from seeds, which, if sown in June, will give plants that will bloom the following winter. There are both single and double-flowered varieties, with colors from white, to dark-purple; especially beautiful are the fringed varieties, in which the edge of the petals are finely cut, as in the engraving. These plants are propagated rather slowly by cuttings made of the side shoots which old ones produce. Seedling plants, as well as those from cuttings, are sold by florists. If any particular variety is desired, those from cuttings must be procured. In purchasing plants, prefer those which have not yet produced buds, or on which these are but slightly developed, as, when they are nearly ready to bloom, they may not endure the change from the greenhouse atmosphere to that of the window, and are very apt to wither up without expanding.

THE FRINGED CHINESE PRIMROSE.

SAUCER PROPAGATION.—Those amateurs who wish to increase their stock of plants can readily do so by the saucer method. Fill a large saucer or other shallow dish, with clean, sharp sand. Having prepared the cuttings, stick them in the sand so closely that they will crowd and touch one another. Water is then to be added until the sand is "as wet as mud." The cuttings are to be set in full sunlight, and the sand be kept wet at all times. Should the sand once become dry the cuttings will perish; no amount of future watering will restore them. Cuttings thus treated will take root with great certainty and in a very short time. As soon as roots appear, they should be potted in light soil, and be cared for until they become established.

Spraying Lawns in the Fall.

The much talked of "fall rains" are, prior to November, not so copious that the lawn will be kept nicely green without spraying with the hose; and as a green lawn is never more beautiful than when the fields are brown and the trees are losing their greenness, the temptation to continue spraying is great, and is usually yielded to. The lawn is fresh and green only while the grass is growing and tender; and spraying, if it accomplishes what is wished of it, must keep the grass growing and tender long after nature would insist upon a rest. Nature is far wiser than he who makes use of the hose during September and October. The natural period of the growth is ended; its natural vitality is expended; and its health demands a rest. If stimulated to growth past this season, its vitality is drawn upon to such an extent, that the winter must go hard with it; and this is increased by its tenderness when frost comes. Nature would have the grass partially dead and altogether toughened before frost; but liberal spraying keeps it growing and in as fit condition to meet frost as it would be in June. Spraying acts mostly upon the parts above ground. Most of the water is absorbed through the foliage. It is true that the ground is wetted; but only on the surface. Very little sinks into the ground; hence, very little is absorbed through the roots. While the top growth is stimulated, the roots languish, and the root formation is weaker, to meet the winter, than if no spraying at all were done. It is often noticed that lawns liberally sprayed in the fall are sparse and feeble the next year, and commonly it is said that they are "drowned out." This is true only in this, that the water puts both roots and tops in a sad condition for winter. It is, of course, but natural to wish your lawn green and fresh in fall, especially if your neighbors are not sparing in the use of water; but you would better allow them to surpass you now; you will be ahead next year. The spray may well be used to keep the grass from suffering for water; but not to stimulate it to an unnatural and prolonged growth. If fall manuring is to be practised, it is all the more important that the grass should go to rest at the natural time. The application of a fertilizer at a time when the grass has already been stimulated to an unseasonable growth, would only increase the injury. As to manures for lawns; nothing is better for grass than stable manure, provided it is so thoroughly decomposed, that all the seeds it may contain are killed. Wood ashes, which introduce no seeds of weeds, is the best application.

A Good Shrub.

EBEN E. REXFORD, WIS.

The very best hardy shrub of late introduction is *Hydrangea paniculata grandiflora*. We have found it extremely satisfactory. It is so entirely hardy, at the North, that it requires no protection in our most severe winters. To grow it well, it must be given a deep, very rich soil. It likes, also, considerable moisture at the roots; but it will grow as well as most shrubs in dry soils. It sends up a good many stalks from the roots, but does not sucker like the lilac. The foliage is small and not attractive, but the flowers make up for all lack in this direction. Like those of the old and well-known *Hydrangea hortensis*, they are small, but they are borne in immense numbers, in large, much-branching panicles, and the effect, at a little distance, is very striking. The branches are often bent nearly to the ground under their weight of flowers. The blossoms are greenish-white at first, changing to ivory-white after having been open for a few days. They keep this color for some weeks, and then gradually take on a reddish tinge. They are wonderfully persistent, often remaining on the branches until winter comes. This shrub is one that stands pruning well. It can be made compact and symmetrical with little trouble. For a lawn it is one of our best plants, and for cemeteries, where white flowers are in demand, it is unexcelled. If especially large flower clusters are desired, cut the bush back, and allow but a single stem to grow; this will need to be supported by a stake, to sustain the weight of the monster cluster. This Hydrangea is quite easily propagated, as it grows very readily from cuttings, and soon makes flowering plants.

The Barbadoes Gooseberry—*Pereskia.*

The plants of the Cactus Family with which we are familiar in cultivation, and the few native ones, have no proper leaves, but the green rind of their mostly flattened stems, serves the purposes of foliage. The genus *Pereskia*, differs from the rest of the family in having several species with broad, flat leaves, as shown in the engraving, of *P. grandiflora*. Another species, *P. aculeata*, is called in the West Indies—where it is a native—the "Gooseberry Shrub," or "Barbadoes Gooseberry." This grows ten or fifteen feet high; its stems are abundantly spiny, and it bears clusters of white flowers, which are succeeded by yellow, pleasantly flavored fruits, that are used for preserves, etc., the same as we use gooseberries. As the Pereskias take root readily from cuttings, and form stout, erect stems, they make useful stocks upon which to graft some of the low-growing Cacti, especially the *Epiphyllums*, popularly called the "Crab's-claw Cactus." A few joints of this, the lower one being old and firm, are used as a cion; the lower joint is cut wedge-shape, inserted in a cleft in the Pereskia, and tied in place with a strip of bast matting. The union is usually very rapid and certain. A stock two feet high, with a head of Epiphyllum in full bloom is a splendid object, and from the little care it demands, is well suited to the window garden.

THE BARBADOES GOOSEBERRY.

A Freak of a Barberry.

When the Evergreen Barberries first became known, they were called *Mahonias*, but later botanists do not regard them as sufficiently distinct to warrant a separate genus, and retain both the evergreen and the deciduous species under *Berberis*. The Holly-leaved Barberry, *Berberis aquifolium*, of our Pacific Coast, is one of the most useful broad-leaved evergreen shrubs of our gardens. There are several other species with evergreen foliage, which are popular in England, but are unsuited to the extremes of heat and cold of our climate. Among the evergreen Barberries popular in England, is Neubert's, *Berberis Neuberti*, which originated in a continental nursery. At a recent meeting of the Royal Horticultural Society (England), a branch of Neubert's Barberry was exhibited which bore the usual evergreen leaves, but in their axils bore clusters of deciduous leaves, in form and texture like those of the common Barberry, *B. vulgaris*. The appearance of this branch, as figured by the "Gardener's Chronicle," is shown in figure 1. Singularly enough, some of the deciduous leaves take on the trifoliate form of the evergreen leaves, as shown in figure 2. As *Berberis Neuberti* has been suspected of being a hybrid between the common Barberry, *B. vulgaris*, and the Holly-leaved Barberry, *B. aquifolium*. This freak may be regarded as a reversion to the species of which the hybrid is composed. But such freaks—called "sports" by gardeners—occur in plants in which there is no suspicion of hybridization. A shrub or tree will produce a shoot, the foliage, flowers, or fruit of which, are quite unlike those upon the rest of the plant. Darwin suggested the term "bud-variation" for these occurrences, which are by no means rare. These sports or bud-variations are not merely curious freaks of nature, but are of great importance in horticulture, as the peculiar forms thus produced may be perpetuated by cuttings, budding and grafting, and, sometimes, even by seeds. Instances are well-known in which a branch of a peach tree has produced nectarines; and, on the other hand, a nectarine tree has been known to produce peaches. The nectarine being merely a smooth-skinned peach, the variation is not very great. Grape-vines with black fruit have been known to bear white, and amber-colored clusters; and similar variations have occurred in plums, cherries, pears, apples, and other fruits. Bud-variations, among plants, cultivated for their flowers, are quite numerous, and the variety thus produced has often been of commercial value especially in the case of the rose, several popular varieties of which were produced in this manner. Several Bouvardias originated thus.

Fig. 1.—BERBERIS NEUBERTI, WITH TWO FORMS OF LEAVES.

To Destroy Quack Grass.—From long acquaintance with this grass, I have learned not to fear it, but on the other hand, to value it for its usefulness. Having had land that was overrun with it, I used part for pasture, and by top-dressing it with stable manure or commercial fertilizer, the grass furnished the cows with abundant food when other provision was hardly procured. By plowing the land deeply, so that the quack was completely covered, but still leaving the loose soil well-filled with the long, white roots, and by careful harrowing, so as not to tear up the sod, this was quite killed and gave no trouble. An old quack sod thus plowed under, is equal to one hundred loads of manure per acre, for it fills the soil to a depth of several inches, with a rich, brown vegetable matter, which will furnish food for several crops. This grass, skilfully used, may be made of great service, but if the work is only half done, there will be endless trouble with it. H. S.

The Mountain Arnica.

Those who have kept the run of fashions in medicine—for there are fashions among drugs, as well as among calicoes—can recollect the introduction of arnica flowers as an external remedy for all sorts of pains and bruises, and its wonderfully rapid increase in popularity, until children would not get bruised unless they first made sure that there was a supply of arnica in the house. The drug which became so suddenly popular, is the flowers of *Arnica montana* (the root being sometimes used), a handsome, composite plant of Continental Europe, the general appearance of which is shown in the engraving. Those to whom arnica is so familiar as a household remedy, are probably not aware that the self-same arnica is cultivated—in Europe, at least—as a garden ornament, where it is valued by English gardeners, both as a rock-work, and as a border plant. Its large heads of deep yellow flowers, making it very showy in either situation. The flowers appear in early summer, and are on stems about nine inches high. There are in this country, over a dozen native species of Arnica, only two of which occur in the Atlantic States: *A. mollis*, is found in the White Mountains, and in other northern mountains; it is similar in appearance to *A. montana*, but has much taller flower stems. *A. nudicaulis*, is a still taller species, found in the pine barrens of the Southern States, but extends as far northward as Southern Pennsylvania. The remaining dozen or more species are found in the Rocky Mountains, and the ranges of the Pacific Coast. It is hoped that some of our flower-loving readers who dwell in these far western localities, may make some of these native species of arnica known to our gardens.

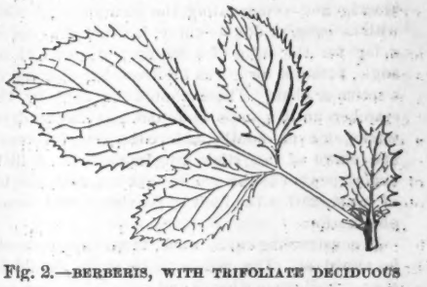


Fig. 2.—BERBERIS, WITH TRIFOLIATE DECIDUOUS LEAVES.

MOUNTAIN ARNICA.

Interior Rustic Work.

FITZ JAMES FITCH.

Rustic work, such as adorns parks, lawns, and gardens, is so familiar to all, that it is needless to write about or illustrate it. Interior rustic work—chairs, settees, lounges, *etagères*, etc., for in-door use—is seldom seen; yet such can be made quite as useful and ornamental as the rustic work which adds so much to the beauty of the landscape. The writer is not a mechanic or an artist; but one whose occupation compels a sedentary life, and whose physical welfare demands exercise. The material used in the construction of this furniture is the Long-leaved Willow, *Salix longifolia*, which grows in great abundance along the banks of rivers and creeks in most of the Northern States. It is beautiful as a tree or shrub.

The willow should be cut in the summer season, when the bark is easily peeled. It is better to peel it as it is cut and before carrying it home, as its weight is materially lessened. It should be stored under a shed, in a garret, or other place where it will be sheltered from the sun, which checks, and the rain, which discolors it. Two or three months will season it so that it can be used.

One, seeking material for rustic work, should carry a large pocket-knife and a small saw, or hatchet. Selection should be made of certain straight sticks of suitable sizes for use as bed pieces for the seat of a lounge, settee, or ch ir, or the back of the same. In searching for them, a number of curved and angular pieces will be found. All these should be cut to be used in filling in, bracing and ornamenting the structure. A stick with an ogee, or double curve, is adapted to use as a leg for the head of a lounge; or, one with an angle, fitting it for use as the front leg and arm of a settee or chair. These should be kept by the searcher until a mate is found. It may be days, weeks, or even months, before the graceful sweep and curve of this stick are duplicated. A little experience trains the eye so that no desirable bit of wood, within the limit of its vision, will escape observation.

In constructing rustic work, three things should be aimed at. The article to be made should be strong, well proportioned and graceful in form and outline. The first can be attained by braces and supports, the necessity for which is seen at a glance; the others depend entirely upon correctness of eye and taste of the worker. No instruction can be given to aid the amateur in respect to either. It is better not to form or draw any design or plan for the article to be made beyond the dimensions and general shape of it; for the material used will not admit of following out in detail any preconceived design. It is already shaped and bent, and your design—if you have one—must conform to the shape and bend of the sticks used.

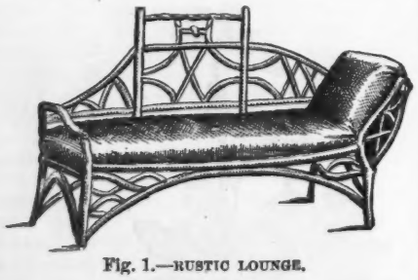


Fig. 1.—RUSTIC LOUNGE.

After the frame-work of the article, say a lounge similar to that shown in figure 1, is put together, the next step is to brace it and give it the requisite strength. The long, arched braces under the seat serve the double purpose of supporting and stiffening the seat and legs. Then should be put in the diagonal braces between the legs at the ends of the lounge. Next put in the curved braces, stiffening the legs at the head of the lounge and supporting the head-rest. It will now be seen, that there are several wide, open spaces that should be filled. A curved stick is placed in the open space and held in different positions until one is hit upon that is graceful, when the stick is cut of suitable length, the ends fitted and secured in place. This step suggests the next, and so the work goes on until all the spaces are sufficiently filled with angles or curves, forming a variety of geometrical figures and architectural foliations.

When rustic work is modeled after a patch-work crazy quilt, it does not matter much how the smaller traceries are put in; but if there is a "method in the madness," each part of the lounge or other article should be consistent and correspond with other parts of it, that the whole may be symmetrical. The curves and angles found in the willow represent true arcs of circles and perfect angles, and are suited to this character of work. With laurel, cedar, and many other woods, this would be impossible. Each article of rustic work must be necessarily, and, I may add, preferably, *sui generis*.

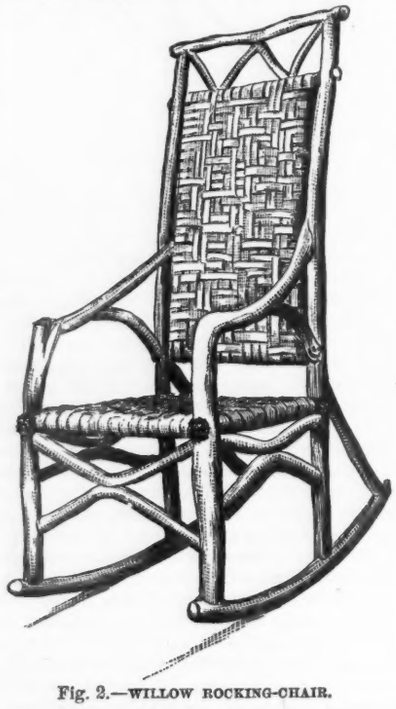


Fig. 2.—WILLOW ROCKING-CHAIR.

All parts of the articles represented in our engravings—except a small portion of the back of the lounge—were secured in place by hollowing out the lateral pieces (bed pieces, braces, etc.), to fit the convex surface with which they were to be joined. This was done with a gouge, driven by a wooden mallet mainly, though smoothed and made to fit perfectly by the use of the amateur's most useful tool—the jack-knife—and a half-round file. In joining the larger pieces—for instance, the bed pieces, with the legs—a hole was bored one-third of the way through the leg from the side opposite the end of the bed piece, with a half-inch bit to countersink the screw-heads; through the remaining two-thirds with a quarter of an inch bit, and with a smaller one, between one-eighth and three-sixteenths, into the end of the bed piece to the depth of two inches. An iron or steel wood-screw, three inches long and one-fourth of an inch in diameter, was driven in with a screw-driver, bit and brace. All the larger joints and parts of the lounge, settee and chairs, made from willow, were secured in that way, though many of the screws used were smaller in size. Some of the thinner pieces forming the filling in—although fitted as above described—were secured by brads or rivets, where the use of a screw was impracticable. In constructing the back of the lounge, holes were bored in the two main uprights, and the lateral pieces inserted or secured by wooden dowels, glue being used.

The next step is the upholstering of the lounge, or putting the seats and backs—if of splints—in the chairs. The lounge illustrated was upholstered. The seats and backs of most of the furniture were made from splints split from the black ash tree, but as this involves too much labor for the average amateur, I would recommend that he buy the splints from those who make it a business to prepare them for use; but he should weave the splints, although the work is very hard for tender hands. Instead of describing how the "basket," or "herring-bone," or "three under and three over" weavings are done, I advise him to cut out, say fifty slips of stout paper, half an inch wide and twelve inches in length, and tack one end upon an L made from thin boards—representing one corner of the frame for the seat—and devote an evening or two to practice. He will soon learn several different methods of doing it, and will, after having learned the art, enjoy the work. The splints, before using, should be soaked two or three hours in tepid water and kept therein until used.

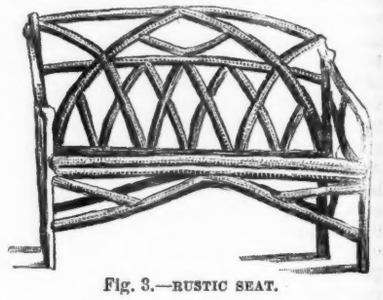


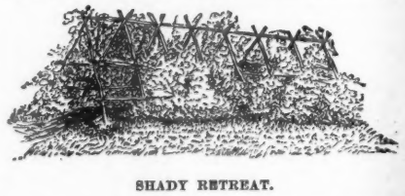
Fig. 3.—RUSTIC SEAT.

When the splint-work, or upholstering, is done, the holes caused by countersinking the screws should be filled by plugs, glued and driven in, or with putty; the rough or soiled places sand-papered and the wood-work, splint seats and backs covered with at least two coats of good copal varnish. I prefer the best coach-body varnish, which is not affected by the application of soap and water, or by the weather.

Upon the willow rocking-chair, figure 2, will be seen on each side four, and in front two ornaments or medallions. They were sawed from excrescences growing upon the smaller branches of the black and red oak; and caused, it is supposed, by one of the insect-borers that infest not only fruit but forest trees. This excrescence, when varnished, is jet black, and its surface resembles very much a mass of blackberries. The medallions contrast prettily with the white surface of willow, and serve also to conceal screw-heads. Fig. 3 shows a rustic seat easily constructed.

A Rustic Arbor.

Those who make new homes in the West, or live in shelterless places anywhere, can easily provide a grateful shade near their doors, by constructing a trellis of saplings, as shown in the engraving. Poles from sixteen to twenty feet long are crossed at the top, and fastened with willow withes or wires, and securely braced by horizontal poles, fastened at the sides and on top. The space enclosed may be from eight to twelve feet in width, and as long as desired. Hardy vines of any kind can be planted at the sides, and the ends left open for entrance. When the vines have covered the arbor, the enclosure will make a pleasant retreat in which to set the table; and, if planted with grape-vines, will both yield pleasure and profit.



SHADY RETREAT.

Care of Canaries.

EMILY H. LELAND.

Many people are very unfortunate with their Canaries. It seems a common occurrence that they die—and not from old age. I have kept Canaries for twenty-five years, and have lost only one—the poor thing falling a victim to an untrained cat. After that tragedy I trained my cats, and I have since lost no more birds.

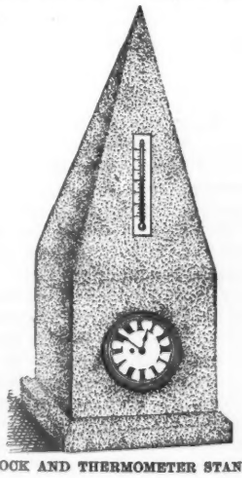
The majority of people keep their Canaries too warm. The Canary Islands may be a trifle warmer than Northern Wisconsin, but the Canary bird is not a salamander for all that. I gave a friend of mine—who has a large family and a smoking husband—a pair of healthy and happy young birds. She hung their cage close up to the sitting-room ceiling, and the breath of six pairs of lungs, the heat of lamps, and the smoke of the good man's after-supper pipe, killed the little sufferers in five days. I wonder that they lived twenty-four hours.

Canaries are often famished for fresh, cool water. You will see bits of sugar, and sponge cake, and cracker, and apple, tucked all about the wires, while the drinking cup will be empty, or filled with green water and "trash," which no bird can touch. If the abused pet could speak, he would say that he would like a little less of grocery-store about him, and a good, square drink of clean water now and then. A sufficiently large bath dish is very necessary, giving room for the little wings to spread themselves. How would we human birds enjoy taking a bath in a narrow wash boiler? A canary seldom has room enough, and water enough, for a thorough, good bath.

A Canary is not an epicure. He doesn't care for a dinner of eleven courses. All he wants is clean, fresh seeds, and some cuttle-fish bone, with, in winter, a bit of apple or crisp cabbage, and in summer a relish of lettuce or chickweed. Mother-birds, of course, need a little hard-boiled egg, and soaked cracker every day, to help on the business of baby feeding, and young birds should have soaked bread or cracker, and their seeds crushed, until their little bills become strong enough to do their own cracking. All other Canaries are healthier and happier for a pure seed and fresh water diet, with the aforementioned relish of fruit or lettuce. Clean sand should be spread on the floor of the cage every day. Birds are social in their tastes, and they like to be talked to, and visited with, and with little trouble they will soon learn to respond to their names, and to do many cunning tricks.

Stand for a Clock and Thermometer.

A square wooden box is used for the clock; that is mounted on a block of wood, and four pointed

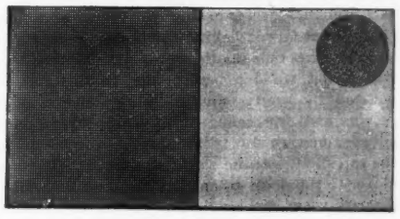


CLOCK AND THERMOMETER STAND.

pieces of thin wood form the top. These are joined-together, as in the engraving. An opening is made in the box for the clock. It is then all covered neatly with plush, pieces being cut to fit the parts, and glued on. Fasten the clock in its place and the thermometer on the top. This makes a useful ornament for a boy's or for a sitting room, and can be made at little expense and trouble.

Board for Cleaning and Polishing Irons.

We have here a board for cleaning irons, which is said to be extremely useful by those who have used it. One can see, by a glance at the engraving, its utility. It is made in the following manner: A pine board, eleven by twenty-two inches, serves for the foundation. One half of this is covered with



CLEANING AND POLISHING BOARD.

wire cloth. It is tacked on, and a narrow strip of tin or leather tacked over the edges of it. The other half is covered first with a piece of an old blanket; this has two thicknesses of white muslin drawn smoothly over it and tacked at the corners only, as it will have to be replaced often with a fresh covering. A cake of beeswax has a piece of muslin sewed around it, and is tacked on one corner.

Fashion Notes.

Simplicity in style is the fashion this season, and prevails everywhere; but, in regard to traveling costumes, it is absolutely arbitrary. To be stylish, every garment must be plain to severity, all fussiness being avoided. The favorite materials for traveling dresses are, cashmere, camel's hair, serge or surah silk; and their charm consists in their perfect fit and finish. They are usually made with a kilt skirt; short, close apron front, and long, straight, back drapery; high basque, rather short on the hips, and with either a pointed or square bodice, and plaited postilion back. Collars and cuffs of linen may be worn, or tourists' ruching basted in the neck and sleeves.

Mountain dresses, and suits for the sea-shore, are of striped flannel, combined with plain blue or white. The skirt is of the striped material, with long draperies of plain flannel turned up in a wide reverse on one side. The Norfolk jacket is of the plain material, trimmed with bias bands of stripes.

Many young ladies affect a "mannish" style of dress—wearing white vests closely buttoned, standing collars and knotted ties; stiff, round sailor hats; long, close sleeves; cuffs, and heavily stitched walking gloves. This is considered very "English." First-class tailors make tennis dresses of white flannel or serge, with a sailor-blouse waist, kilt skirt, and sash drapery. They use wide sash-ribbon on these gowns, on which are brocaded racquets and balls; and the collar and cuffs are also cut from this ribbon. Watered silk is again largely used in combination with fine woolen or silk goods.

Picturesque piazza wraps are short mantles of deep red, white or blue homespun, made with sling sleeves and a hood, and trimmed with gilt or silver cord.

Many lace and bead bonnets are worn without strings, while others are tied with ribbons, and the bows fastened with small, jeweled pins.

Monsquetaire gloves are preferred to all others in kid, but those with four and six buttons still come for street wear. The gloves and mitts of Jersey silk are more popular than ever. Black kid gloves are worn with white frocks.

Pretty fronts, known as the "robin redbreast," and "sea-gull" plastrons, are used to brighten up dark toilettes. The former is made of dull-red silk, as nearly the color of the robin redbreast's plumage as possible, and the latter of gray satin, in changeable tints. They are allowed to fall full below the waist. Another new wrinkle, is the wearing of large, fluffy bows of white or bright-colored tulle beneath the chin.

Long veils for protecting the face are of red or blue tissue, with tiny dots. They are put on in scarf-shape—that is, passed over the face, and front of the hat, carried behind, and tied on the left side. Small face-veils are worn longer than they have been, and extend to the tip of the chin.

Parasols have immensely long handles. Those of plain silk or satin will remain longest in fashion.

Elderly ladies wear an arrangement of lace and ribbon—half cap, half head-dress. Some are made with a full cap crown; others consist merely of a fall of lace, with shells, or ruffle of lace for the front, and knots of ribbon.

Home Recipes.

PRESERVED PEACHES.—For choice preserves it requires choice fruit, and the peaches should be all white or all yellow, and of even size. Scald them lightly and peel, and allow three-quarters of a pound of sugar to each pound of fruit. With as little water as possible, make a syrup of the sugar; take off the scum, and when it is as clear as water, put the fruit into it; cover tightly and let it boil from five to ten minutes, according to the ripeness of the fruit. With a silver fork lift the peaches into the preserve jars—those with porcelain lined or glass tops are the best—fill up the jars with the syrup to overflowing, wipe the rim carefully, and at once close the jars air-tight.

PICKLED PEACHES.—After the peaches are peeled, allow one-half pound of sugar to each pound of fruit. With as little water as possible make a syrup of the sugar; when the syrup is quite clear, just scald the peaches in it, and then place them carefully into medium-sized glazed, stone jars; sprinkle plenty of stick cinnamon and a few cloves between the fruit. Let the syrup boil for five minutes longer, then add pure vinegar, sufficient to give a pleasant sub-acid taste; let it boil up again, and at once pour over the peaches. When cold, tie up well, and store in a dark, cold place.

ORANGE WAFERS.—Beat the yolks of four eggs very light; stir into them one-half pound of white sugar, one-quarter pound of flour, the juice of one lemon, the grated rind of a half one, and the white of the eggs, beaten to a stiff froth. Drop this batter from a teaspoon upon buttered paper, and bake in a quick oven. Spread orange marmalade on the underside, and place two together.

Wash-Board Match-Safe.

The novel little match-safe shown in the engraving is made of a toy wash-board. A little tin box

MATCH-SAFE.

is tacked on the back, and a piece of black sand-paper is glued on the front. The frame is then gilded, and a ribbon is tacked on the top to hang it up by. If preferred, the lettering on the front may be omitted and a little picture glued on instead.

Macaroni.

AGNES CARR SAGE.

"Ah! Macaroni, dear little Macaroni! is it really true that you must be sold?" cried Carlotta Valente, throwing her arms around the neck of a small, gray donkey, and showering his long ears with kisses.—"'Tis too true," sighed her brother, Jacque, "to-day we will have our last trip up the mountains together; and to-morrow I shall take him to the city and sell him to the highest bidder;" and the boy's lip quivered, while the large, dark eyes of all the swarthy children, gathered around, overflowed with tears; those of little Agostina falling on a sleeping baby she held in her arms, tightly bound hand and foot in yards of wrappings, as is the curious Italian fashion, the wee black head alone protruding from the huge cocoon. — "Do not cry over Pepita," exclaimed their mother, "it is bad luck," and she carefully wiped the drops from the infant's face; "though Heaven knows, little good luck has come to us since the father was drowned."—"The worst of all is, that we must lose Macaroni," said Giovanni. — "No, the worst will be, if our Rosa has to go away over the sea with Pedro, the Padrone. He says he will take her to America and make her a great singer," and the mother glanced with sad eyes at a young girl, seated at a distance, slicing vegetables into a bowl, and singing in a low, singularly sweet voice,

"*Ladis, Ladis, che la malata,*
Per me mangia polenta."

"She sings of a girl who was too ill to eat her polenta, but the trouble with us is we are well, but have no polenta to eat," laughed Carmella, whom nothing could make sad long, and whom her brothers and sisters called *Carmellouche*, because she was such a tease.—"Nor will you have bread if things continue as they are," said Mrs. Valente. "I have had no washing in three weeks, and it is many months before the grapes will be ripe and we can find work in the vineyards. So come, Jacque and Giovanni, away up the mountain, and bring us a good, big fagot for the fire; for, hereafter, you will have to carry Macaroni's loads on your own backs."

Thus bidden, the two elder lads snatched up their quaint, conical-shaped felt hats, hung a coil of stout rope about the donkey's neck, and mounting the stolid, little beast of burden, trotted slowly away, up the pretty, winding road. The Valentes' cottage was picturesquely situated on a steep hillside above the quaint, old city of Genoa, with a view of the blue bay in the distance, sparkling and glittering in the morning sunshine. But that same blue water is as treacherous as it is beautiful, and one stormy night it swallowed up a poor fisherman—Giovanni Baptista Valente — and dragged him down into its deep, murmuring caverns, leaving his peasant wife and eight little ones to fight the battle of life alone. Very bravely the widow faced the world, and secured laundry work from the many foreigners who came to bask beneath the fair Italian skies, washing the linen in a little stream that flowed behind her house, by spreading the garments on smooth stones and beating them with a flat, wooden mallet; and in this she was assisted by pretty, musical Rosa. But a sickly season had frightened the tourists from Genoa; silver came very slowly into the old, wooden box on the top shelf, and the wolf was creeping closer and closer to the door, when they made up their minds to part with Macaroni, the gentle, little animal that carried the paniers of clothes so willingly back and forth to the city, brought the fire-wood from the forest above, and was like a child in the household. So that golden winter day was a sad one in the little mountain home, and the two boys were not much happier, as they wended their way to the bountiful woods, where the ground was strewn with dry twigs and branches. On the way, they encountered a handsome traveling carriage, which had stopped at a high point commanding an extensive view; and an English appearing lad was eagerly pointing out distant objects to his sister, a pretty, blonde girl with long, fair hair, and honest, blue eyes; while a prim governess sat by, looking as though "prunes and prisms" were her daily diet.

"What dirty, ragged, little wretches," exclaimed the boy, as Jacque and Giovanni jogged slowly by; "if these are a specimen of the picturesque Italian peasants, I think we have much better in England."—"Oh! hush, Dudley, they will hear you! and I think they are charming, with those big, black eyes and that dear, funny, little donkey," which, however, the Italians did not understand, although they did the bright smile and merry nod of the young girl; to which they responded with an awkward bow and cheerful "*buon Giorno;*" for looks and smiles are alike in all countries, and they did not hear the severe reprimand of the stiff governess for such familiarity. "Is she not beautiful, the little, white Signorina!" exclaimed Jacque; "just like the angel in the big picture in the church."—"Yes," said Giovanni, "but that boy is proud. I saw him put up his chin at us. I hate these English, and would like to knock him down;" for his Southern blood was on fire at the imagined insult.—"You will never have the chance," laughed milder-tempered Jacque, "and here we are at the forest." Underbrush was plentiful, and as the boys worked with a will, a large bundle was soon securely tied up with the stout rope. They whistled gay little airs to keep up their spirits, but almost broke down when the last fagots were bound on Macaroni's back and he rubbed his head against their shoulders in a caressing manner. "*Carino mia!* it will be lonely without thee," sobbed Giovanni, while Jacque added, "To-morrow is a *Festa* day, but it will be like Good Friday to us, and we will not light a single taper." In silence they trudged down the mountain side, leading the little donkey with his load of fire-wood, their sad thoughts full of the coming morrow; when suddenly, loud cries of distress fell upon their ears, seeming to proceed from a side-path that wound on the edge of a steep precipice or ravine.

"WHOM THEY FOUND AT LAST, PLAYING WITH COPPERS."—(*Page* 379.)

Engraved for the American Agriculturist.

"What is that?" exclaimed Jacque, stopping at the junction of the two roads. — "It is that proud English boy; let us go on and take no notice," said Giovanni, whose quick eye had recognized a figure in the distance. — "But they may be in trouble." — "Then let them get out of it by themselves, for I will not help them," muttered Giovanni with a scowl.—"That is wrong, brother; the mother says we should assist all we can. I shall go and see what is the matter," and Jacque ran swiftly down the side-road, followed reluctantly by Giovanni with Macaroni. They were met by the English lad, now quite divested of all pride and dignity, and gesticulating in a beseeching manner; but they could not comprehend what he wished, until the governess hastened up, exclaimed in their own language: "Oh! do try and help us! The little Lady Alice has fallen over the cliff, and cannot hold on much longer!" Hurrying to the edge of the precipice, the boys saw a sight that almost took their breath away; for there, many feet below, hung the little English girl, clinging for her life with weak, frail hands to a jutting stone in the side of the cliff, one foot partially supported against the embankment; her blue eyes turned pleadingly upward while she feebly wailed: "Oh! Dudley, Dudley, save me quick! I can't hold on much longer," and far below a mountain stream surged and roared as though eager for its prey. "The white Signorina!" exclaimes Jacque in horror, while even Giovanni turns pale, and stands as though terror-stricken, gazing down below. Two or three great stones are loosened from their stronghold and go thundering into the depths

beneath; and the girl screams with terror, and turns so white, the lads expect to see her fall insensible from the narrow ledge, while her slender wrists seem strained and trembling.

"Courage, courage!" shouts Jacque; "we will help you soon," and the tone encourages the poor child, although she does not understand the words. Rapidly, meanwhile Jacque is untying the fagots from Macaroni's back, scattering them to the right and left, and now appears with the long rope that bound them. This he knots beneath his arms, and says to his brother: "You and the young Signore must hold the end tightly, and I will try and save the little Signorina."—"No, no, Jacque, do not attempt it! why should you risk your life for these strangers?" cries Giovanni. "Think, if you should fall! What would become of the mother?"—"I must," says Jacque, though his lip trembles, "and you must do as I tell you;" and in another moment he is over the edge of the cliff, swinging in mid-air, while his brother and the English boy brace themselves against a pine tree and gently lower him.

Down, down, oh! how long it seemes to Jacque, while he turns sick and dizzy, and has to look up at the turquoise sky to keep his head from reeling. But he is now on a level with the clinging girl; her sweet, frightened face dispels all other thoughts, and with a grip like a vise, his brown hands clasp her white wrists.

"Come, I will save you," he whispers softly, and then calls aloud, "Pull, pull us up," when, to his horror, the girl's white lids close, her head drops—she has fainted away, and hangs a dead weight on his hands, which, fortunately, have been strengthened by much hard and vigorous labor.

"Quick, quick!" he shouts; and with all their might and main, Giovanni and Dudley tug at the rope, while even Miss Wintergreen has to step down from her pedestal of dignity, and lend a helping hand. The rope creaks and strains, but it is a new one, and does not break, and at last, with a long gasp, Jacque finds himself once more on the brown earth, with Dudley shaking him by the hand in an overwhelming fit of gratitude, and Miss Wintergreen sobbing over the little, insensible Lady Alice. A hatful of clear, cold water from a mountain spring, soon, however, brings back a tinge of color to cheek and lips, and the blue eyes slowly open.

"Where am I?" she asks, with a shudder.—"Safe, safe, my darling," sobs Miss Wintergreen; "but had it not been for this brave peasant lad, I tremble to think what might have been."—"How did she come to fall?" asks Jacque of the governess, although he has to smother a laugh at her school-book Italian.—"It was Mr. Dudley's fault. He was teasing his sister, and she stepped quickly backward, and went down. It is a miracle that she caught on that ledge."—"Where is the carriage?"—"It broke down, and the coachman took it to a small village back here to be repaired, while we waited in this pretty spot. I wish he would return, for Lady Alice looks really ill."

"Our cottage is not much further, she might come there and rest."—"She could not walk."—"But she might ride Macaroni, he is very easy."—Miss Wintergreen is about to decline, when her young charge's weary looks catch her eye, and Dudley exclaims, "What are you chattering about in that outlandish gibberish? Is there not some place where Alice can go and rest?"—If you think my lady would like her to enter a peasant's hovel."—"Of course she would.—I am sure we owe more to peasants to-day, than we can ever repay;" for, under his crust of pride, Dudley was a good hearted boy, and now cast such an affectionate glance at Jacque, that Giovanni relented, and forgave him the insult of the morning. A saddle of shawls was arranged on Macaroni's back, and the little lady was soon laughing merrily at the funny cavalcade that filed down the picturesque mountain road. And what an excitement there was among the Valentes, when the party arrived, and how proud they were of the oldest son and brother, when the adventure was told, and his heroic deed recounted, showering him with admiring words and glances.

Little Antonio was sent to direct the coachman, and when the stately carriage rolled up to the door, nothing would do but Jacque must accompany them into Genoa, and be thanked by Lord and Lady Redfern. He hastily donned his holiday clothes, and began to climb up beside the coachman, but Dudley insisted upon his sitting inside, for he bitterly regretted his harsh words of the morning, and felt as if he could not do too much for the young hero, who had saved his sister's life, and himself from everlasting remorse. Miss Wintergreen was sadly shocked, but had to suppress her feelings, and act as interpreter between the boys, when Jacque told his little story, and how sad they all were because Macaroni was to be sold on the morrow.

"But he shall not be," cried Dudley, "papa will not allow it."—"No, indeed," said Alice, "and pretty Rosa shall not go to sing for the Padrone." But they now rattled up to a beautiful old palace, surrounded by orange and lemon trees, and a gentleman and lady came quickly down the terrace to welcome their children. They were somewhat astonished when impulsive Dudley dragged Jacque forward, exclaiming, "Oh, papa! oh, mamma! this boy has saved Alice's life, and you must buy Macaroni and give him back to them, and not let Rosa sing in the street!"—"What is all this?" said Lord Redfern, with a dazed smile; but he quite shared his son's enthusiasm when all had been explained by Miss Wintergreen and Alice; and as Lady Redfern clasped her daughter in her arms, she cried, in pure, liquid Italian, "Yes, my boy, you must tell us how we can best reward you."

"I wish nothing for serving the Signorina," said Jacque, drawing back.—"Then take this as the price of Macaroni," said Lord Redfern, forcing a well-filled purse into the boy's hand, "and accept the donkey also, as a gift from Dudley and Alice." "Grazie, Signore," and with a low bow Jacque beat a retreat, and with a joyful heart sped off to his humble home, where he was welcomed with shouts of delight; and that night, as he gave Macaroni his supper, he said, "Are you not glad now, Giovanni, that I took notice of the cries of distress, and helped even a proud English boy?" and, with a blush, the younger boy said, "Yes, Jacque, you were far wiser than I, for Rosa has sent a refusal to Padrone Pedro; and hear how gaily she sings the 'Carnival of Venice,' as she stirs the polenta."

The morning of the grand *Festa* day dawned in a shower of sunbeams, and the country roads were early astir with family groups in holiday attire, wending their way into Genoa. Among these were all the Valentes, from the mother, mounted on Macaroni, down to little Pepita, sound asleep in her arms. The girls were radiant in full, blue gowns, and scarlet kerchiefs, with long, white veils crowning their black hair; and the boys awakened the echoes with their happy, light-hearted whistle. To English Alice and Dudley, the picturesque scene in the quaint old streets was intensely interesting; and they watched eagerly on all sides for Jacque, whom they found at last, playing with coppers with a favorite companion. A blush of delight overspread his face at sight of the "white Signorina," and he could hardly restrain his joy, when she stopped, with an invitation from Lady Redfern for the whole family to dine at the "Orange Palace," as the great house was called.

And what a funny, odd feast that was, or would be to us, the table being laden with queer Italian dishes, with queerer names. *Tagliarini ravioli* German sausages, macaroni, cock's combs chopped up with liver, fresh figs and sweetmeats, with many other dainties, such as the Genoese delight in.

But the crowning point was, when Lord Redfern came down to again praise and thank brave Jacque—who was quite overcome with confusion at so much notice—and engaged him for the season, to assist the gardener in taking care of the flowers and plants in the beautiful grounds surrounding the old palace. Mrs. Valente often says that was the proudest and happiest day of her life; and all of them had reason to rejoice, that Jacque had heeded the cry of distress, when bringing home the fagots.

The Doctor's Talks.

RESURRECTION PLANTS.—ROSE OF JERICHO.

Many years ago, when a journey to the Holy Land was more difficult and less frequent than at present, travelers often brought home among the mementoes of their journey the Rose of Jericho—

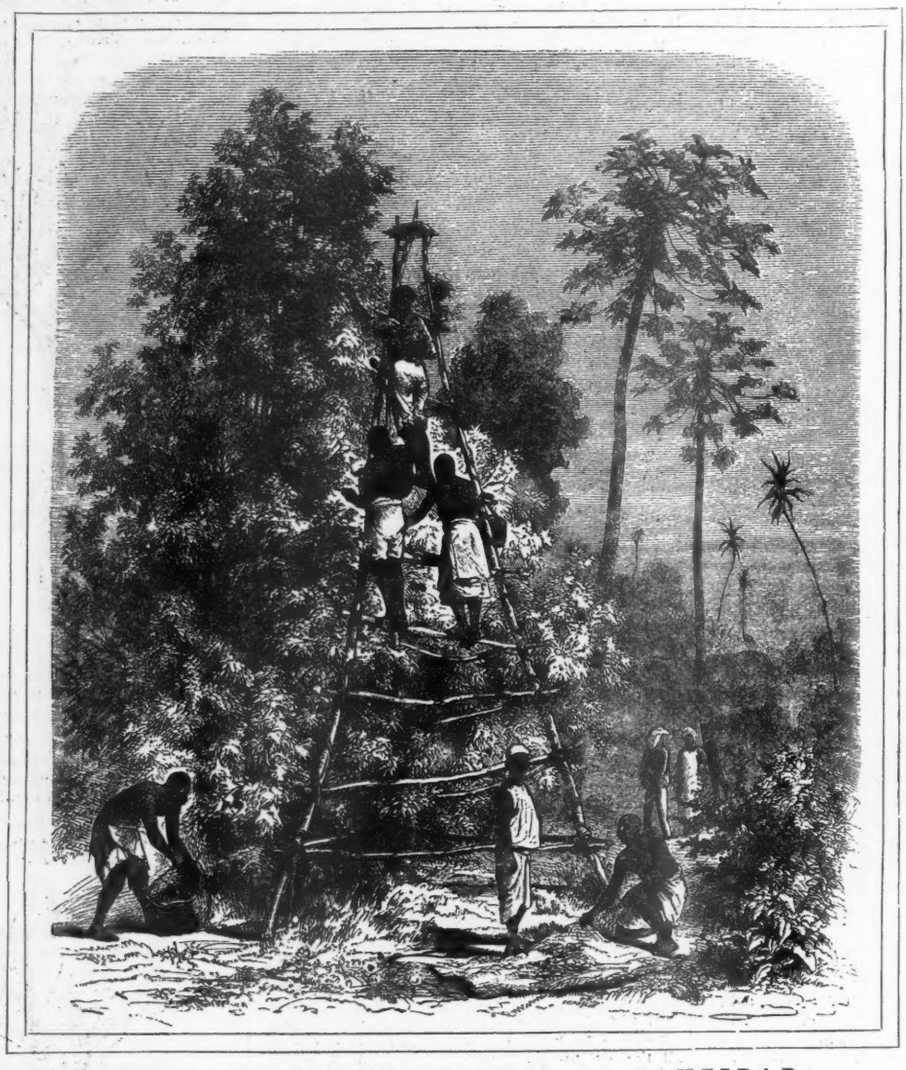
Fig. 1.—DRY BRANCHLET AND FRUIT.

an object like that shown in figure 1, but usually more compact, with the points more incurved than in the engraving. As the sharp Arabs represented this as exceedingly rare, the traveler usually paid a round price for it, and consequently valued it highly, aside from its miraculous power of returning to life when placed in water. At our great Centennial Exhibition, an Arab, or other Oriental, brought over Roses of Jericho by the bushel, and

Fig. 2.—RESURRECTION PLANT.

one could procure this Eastern wonder without going to Jericho for it. The plant is not a rose, nor is it related to the "Queen of Flowers," nor does it return to life. Divested of all Oriental romance, it is merely the dried stems, the skeleton, as it were, of a very coarse looking plant of the

Mustard Family. The foliage of the plant, its inconspicuous white flowers, as well as its rounded woody seed-pods, are shown in figure 2. The plant is an annual, and when its seeds are ripe the leaves fall, and the stems dry up, curl towards the center, forming a sort of a ball; this, in time, is up-rooted, or becomes broken from the root and is rolled off by the winds, until it is stopped by some obstacle. Here it rests until wet by the rains, when the dried branches spread out, the rigid capsules open and let out the seeds, thus furnishing an interesting example of one of the methods by which seeds are scattered and plants distributed. After the plant is dead it does not "resume vitality," as one author has it; but its opening, or spreading its branches, is a mere mechanical effect caused by the water, just as a shaving will uncurl when wetted. As a "resurrection plant," this is vastly inferior to the plant of that name from California; that is a species of *Lycopodium*, which grows upon the rocks, and when dry rolls up into a ball, which unrolls when moistened; as the upper surface of this retains its dark-green color for years, it has more the appearance of vitality than this cluster of dead sticks from the East. The botanical name of the Rose of Jericho is *Anastatica Hierochuntina*, the generic name being from the Greek word for resurrection, and the specific name is from the Latin name of Jericho. It is also known under various names.



HOW THEY GATHER CLOVES IN ZANZIBAR.

ABOUT AMBER.

W. C. G., Bergen Co., N. J., wants me to tell him about amber, a material much used for mouth-pieces to pipes, and worked into various kinds of jewelry. Amber is regarded as a fossil resin, the product of trees apparently related to our pines, but now extinct. Amber is only found in localities where forests have been submerged or buried. The principal locality for amber is on the shores of the Baltic Sea, where it is cast up by the waves, and in part dug up from the remains of a submerged forest. The right to gather amber in these localities is "farmed out" by the government. Amber is found in other countries, but not to any great extent. It has a resinous appearance, but is quite hard; it is of a peculiar, light, brownish-yellow color, which, when it occurs in other substances, is called "amber-color;" it is sometimes transparent, but often opaque and mottled with white. It is found in pieces weighing a fraction of an ounce, up to those of several pounds in weight. The largest known lump weighs thirteen pounds and a half. Specimens of amber are often found enclosing insects and other minute forms of animal life, showing that the material must, at one time, have been in the liquid or semi-liquid state. These creatures all belong to a former age; over a thousand different kinds of insects have been enumerated, and over two hundred myriapods, spiders, etc. Figure 3 shows two pieces of amber, in one of which an ant and in the other a scorpion is imbedded. When a piece of amber is rubbed, it manifests electricity, and will attract bits of paper and other light substances. This article is of great interest, as it gives the name to that wonderful and useful agent which we call electricity. The Greek name for amber is *Elektron*, and as it was the first substance in which electric effects were noticed, the name of the material gave its name to the phenomena. So striking were the properties manifested by rubbing a piece of amber, that it is not surprising the ancients supposed it had a soul. Amber occurs also in some parts of the United States, in the green sand formations, and in the clays succeeding these. The principal places in which it has been found are, Amboy, N.J., Cape Sable, Md., and at Gay Head, on Martha's Vineyard. Its commercial value depends somewhat on the color, and principally on its weight.

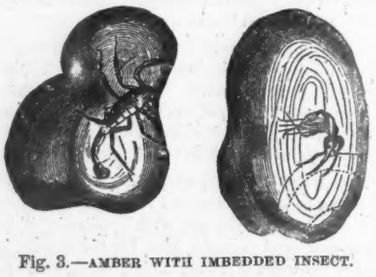


Fig. 3.—AMBER WITH IMBEDDED INSECT.

A Clove Harvest.

Very few who make use of the pungent spice known as cloves, know what they really are. They are generally supposed to be a fruit or seed, while really they are the unexpanded buds of the clove tree, *Eugenia caryophyllata*, a beautiful tree of the Myrtle Family. It has much the appearance of a pear tree, and grows to the height of forty feet; its leaves are evergreen, with which its clusters of pink flowers form a beautiful contrast. All parts of the tree are aromatic, and the flower-buds especially. A clove, when examined, shows a rounded head upon a short stalk; having some resemblance to a nail, the French call it *clou*, their word for nail, from which is derived our name—clove. If a clove is soaked in warm water, the rounded head can be opened, showing it to consist of petals, one within another, beneath which are the remains of the stamens and styles, indicating that it is really a flower-bud. If this rounded head be removed, the stem portion will be seen to have four points, which are really the points of the calyx, while the stem portion is the ovary, to which the calyx is adherent. The clove tree is a native of the Moluccas or Spice Islands. While the Portugese held possession of these islands they placed great restrictions upon the culture of and commerce in cloves. The Dutch drove out the Portugese entire, and restricted the culture to Amboyna, causing the clove trees in all the other islands to be destroyed. In order to prevent the price from going too low, only a certain quantity of cloves was allowed to be exported, and a large share of the product of Amboyna was publicly burned. This attempt to maintain a monopoly did not succeed. It only stimulated the French, who by some means obtained the clove tree and took it to the Isle of Bourbon, where it flourished, whence it was carried to the West Indies and to various other tropical countries, especially to Zanzibar, which is now one of the most important clove-producing countries. The engraving represents a clove-gathering scene in Zanzibar, where the harvest begins, in dry seasons, in October, and in wet seasons much earlier. Several negroes work together; they first build a rude ladder, with three poles, about twenty feet long, with cross-pieces, as shown in the engraving. The unopened buds are picked by hand, though they are sometimes whipped from the trees by beating them with bamboos. When fresh the cloves are pink and white, but when spread upon mats to dry they soon become brown. A tree yields from five to fifteen pounds. It requires five thousand cloves to make a pound. The supply of this country is drawn mainly from the West Indies and from Zanzibar.

Every Boy and Girl should have the

New History of the United States

Ready Sept. 1st.

How to Get it for Nothing, see pages 388 and 389.

Improving the Common Fish-Pole.

A birch, alder or willow pole can be much improved at a trifling expense. First cut the pole into two, three or four pieces. Remove the bark at the ends, forming a round tenon on each, as in figure 1. Have the tinsmith make a tin ferrule to fit each end. These ferrules, if used single, must be from four to six inches long, so that each end will have a deep socket. Fasten the ferrules on the upper end of each piece securely. A tip for the pole can be made of any tough, springy wood, to replace the natural tip if so desired, and can be completed with a wire loop at the smaller end, and wire stays for holding the line, as shown in the engraving. When fishing along brooks, where it is frequently necessary to lengthen or take up the line, a reel will be found very useful. One that will answer for a common fish-pole is shown in figure 2. This can be made from a common spool, a piece of wire and a piece of thick tin. The tin may be cut in the form of a cross, the longest part bent rounding, so as to fit the butt of the pole, the sides bent up so as to support the

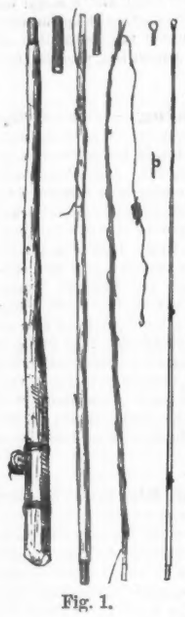


Fig. 1.

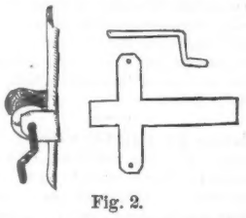
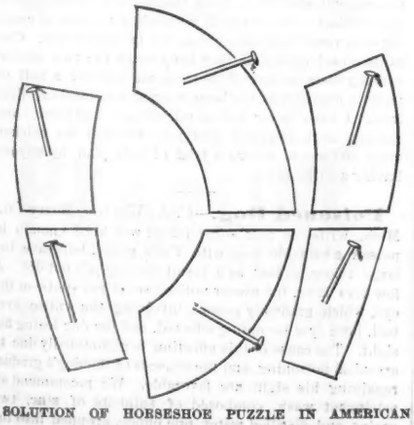


Fig. 2.

spool, which is to be placed in position with the wire crank inserted. The reel thus made can be secured to the pole, as shown in figure 1, with twine.



SOLUTION OF HORSESHOE PUZZLE IN AMERICAN AGRICULTURIST FOR AUGUST.

A New Method of Glazing Sash.

PETER HENDERSON.

It is well known that all glass now (both in portable sashes and in fixed greenhouses), is simply imbedded in putty, and kept in place by glazier's points, no putty being now used on top, as was formerly done. It has been found that when the glass lays on the sash-bar thus imbedded the putty soon rots or wears out, and water gets in and not only loosens the glass, but rots the bar as well. A most simple plan to obviate this is to pour along the junction of the bar with the glass a thin line of white lead in oil, over which is shaken dry, white sand. This hardens and makes a cement that effectually checks all leakage. It is quickly done. Our engraving shows how the portable sash is held, and the application made from the oil-can containing the thin white lead. I have seen glass, so cemented, that has stood for ten years, still in perfect order, and it looked as if it would stand for ten years more without further repair. This plan, which is but little known as yet, is of the greatest importance; had I known of it thirty years ago I would have saved many thousands of dollars in repairing, besides having the plants under this water-tight glazing in better condition.

IMPROVED METHOD OF GLAZING.

Tools for the Boys.

By all means, provide the boys on the farm with tools by which they can learn the rudiments, at least, of the carpenter's trade. Every farmer ought to be so familiar with the use of the saw, and square, and plane, that he can do ordinary "jobs" for himself, and not be obliged to let them go undone, or call in the services of a professional. If fathers would provide tools and allow the boys to use them, and not only allow, but encourage the use of them, most boys would soon become quite proficient in the management of them. If this were done, a considerable sum of money might be kept in the family, when there was a new barn, shed or other outbuilding to be built.

It is not to be expected that every boy will be able to do fine work, but many boys would soon be able to do such work as is required about barns and shed. The reason why they are not, is because they are not given a chance to become familiar with the use of the tools required in doing such work. Many farmers have nothing but a hammer and saw. This is not as it should be. The jobs that the boys can do will soon save the farmer more than enough to pay for a good set of tools. If some one at home is able to do such work, the chances are that the buildings will be kept in repair, but if no one on the place is "handy with tools," the needed repairs will be neglected, and there will be consequent loss and the ultimate expenditure of a considerable sum of money when at last the farmer "gets around" to have the necessary repairs made.

The outfit on the farm should include a set of blacksmith's tools. The boys will like to experiment with them, and experiment will soon lead to tolerable proficiency in their use. It often saves a good deal of time and vexation if, when a breakdown occurs in a busy time, there is some one on the place able to mend a chain, or weld an iron. Give the boys tools to work with and it will amuse and educate them, and you will find the outlay to be an exceedingly profitable investment.

The Fair Season.—No Fairs.

We present (pages 390-92) the most complete Fair List ever before published, having employed several persons for a long time in its preparation, and carrying on extensive correspondence with parties in every county of every State and Territory in the Union, also of the Canadas. This vast array presents at a glance the great agricultural development of the United States, and reveals the growing interests in that pursuit which Washington so happily described as "the most healthful, most useful and most noble employment of man." We trust that every reader of the *American Agriculturist*—man, woman and child—will be present at some one of these fairs, and aid, to his and her extent, in making it a success.

"NO FAIR."

Out of the whole number of responses, nearly five hundred state that no fairs will be held in their county. Those counties which have no fairs are mainly located, we regret to say, in the Southern States. We have classified them under their respective States on page 390. The majority of the "no fair" replies simply say "no fair;" others give a reason why none are held, and occasionally a gleam of humor breaks the monotony of the responses. From a county in Nebraska one writes that the fair is "suspended from want of enterprize—a bad showing, but I can't help it. We can down the world this year on hogs, cattle and corn." From one county in West Virginia we are told: "Our Fair Association is no more. Died from too much (mis) management." A Colorado respondent writes: "We have no fair," and adds as a reason: "Can't afford one." Another, in Louisiana, regretfully says: "No fair organization in this county. We are away behind the times." In the same State another respondent takes a very hopeful view of matters, and adds: "No fair this year, but will have a boomer next year." From Mississippi a lady official informs us: "No fair this year; the organization about played out." In Colorado we are told of Las Animas County: "No fair was ever held in this county, but once in a while we have a circus." To the question: "At what date?" a Texan gentleman writes: "When the roses bloom again. She are busted." The case in Lincoln Co., Tenn., seems to be hopeless. We are told that "Fair grounds are sold and converted into a market garden." Better things prevail in Adams Co., Wis., where, we are informed, "Our fair is a success. We yearly receive $200 from the State, which helps us out." The prosperous and populous state of Pennsylvania has one county which has no fair, because it "is too poor to have any." We withhold the name of the county. From Lee Co., Ark., the reply comes: "We have no county fair grounds or buildings. This county, during the last three years, has advertised (probably he intended to say exhibited) extensively at Louisville, Ky., and at New Orleans, La., always carrying off the 'blue ribbon' on cotton, fruits and timber"—abundant reason why the county should have a fair of its own.

GOOD MANAGERS NEEDED.

Some counties have never held a fair, while others formerly had a fair, but have abandoned it. Where the fair has been given up, and in some cases the grounds sold, it is safe to assume that the fairs have been mismanaged. In no place is the "right man" more imperatively needed than a manager of a fair. He must be able to attract and to satisfy exhibitors, and also to attract visitors by proper announcements and display. Such men are somewhat rare, but when one is found the fair is sure to succeed. Give him all power, for he must be an autocrat, with no appeal from his decision.

15 Months for 12.

See next page.

Chat with Readers.

The American Horticultural Society.—The annual meeting of this Society will be held at Cleveland, Ohio, on September 7th. W. H. Ragan, Greencastle, Ind., is Secretary, who will give particular information on application.

Clover Seed.—J. W. J., Bowman's Bluff, N. C., has raised some clover seed, but has no huller, and does not know of one in the county. He asks us if the seed may not be sown without hulling, merely threshing it out. Clover seed raised upon the farm is frequently sown without hulling with good results.

Raising Onion Sets.—W. S. Chapin, Montgomery Co., Mo., writes us asking the best seed to raise onion sets from. Whatever variety of onion you wish to raise is the proper seed to use for sets. Setting out onions for seed in the fall saves a great deal of time, and is generally equally successful with setting in spring.

The Death of James Y. Murkland.—The New York Horticultural Society has lost its most efficient Secretary, Mr. Murkland, who died in July last, of consumption. The society will find it difficult to fill the office with one more enthusiastically devoted to its interests.

Warts on Animals.—Mr. M. Zehler, Montgomery Co., Ohio, writes us: "We possessed a fine Jersey bull which had warts on one of his eye-lids. We covered the warts three times with gas-tar, and they disappeared. The same remedy was applied to a horse with like results."

Waterproof Covers for Wagons, Tools, Hay Caps, &c.—These covers, which are specially valuable for those not having sufficient farm room, are described on page 386.

Short-Horn Cattle.—Louis F. Allen's description of the Short-horn cattle in the September number of "Harpers' Magazine" (the ablest of all our purely literary periodicals) will be read with absorbing interest by all our readers. Ever since A. B. Allen founded the *American Agriculturist*, forty-five years ago (continuing for fifteen years its editorial manager), the name of Allen as writers on agricultural topics has everywhere commanded attention.

Polishing Horn and Bone.—L. E. Wolfe, Ellsworth Co., Kans. Articles of horn and bone are first made smooth by rubbing with glass-paper (usually called sand-paper). Next, they are rubbed with powdered pumice-stone, applied with a wet cloth. Finally, they are finished with fine whiting (called Paris White), and soap-suds, rubbed on with a cloth.

Sucking Cows.—James Kirkpatrick, Beaver Co., Montana, writes us, suggesting the following cure: Place a strong girth of leather or canvas around the body of the cow, back of her forelegs. Have a buckle or ring on each side fastened strongly; put on a common horses' head-stall, and fasten straps or ropes to the ring under the jaw, passing back to the buckles on the sides of girth. Let her head have some side play, but not enough to allow her to reach the teats.

Poke-Root or Pigeon-Berry.—This stately herb has a root which has long had a reputation as a cure for garget. That it possesses medicinal and even poisonous qualities is well known. It has recently been suggested as an insecticide. The fresh root sliced is fatal to cockroaches. When the fresh root is not attainable, a strong infusion made of the dry root and sweetened may be tried.

Lasts for a Lifetime.—"Subscriber," Royal Oak, Md., writes us: "Tell L. H. J., Augusta Co., Va., to slit cow's tongue up two inches or more to prevent sucking. It is inexpensive and lasts the cow a lifetime." To be sure it lasts a lifetime, just as "Subscriber" would find if his tongue was slit, that it would last him for lifetime. But we ask the latter, how would he like it? We prefer the perforated bit as being not only not cruel, but not productive of pain. See February *American Agriculturist*.

Destroying Garden Ants.—Alfred H. de Lisle, of Orange Co., Florida, writes us as follows: "Here is my plan of getting rid of ants in the garden. Take a bottle having the inside edge of the rim as abrupt as possible; bury it where the ants are, so that the soil comes a little above the mouth of the bottle. Smooth the ground around, and the ants in their flurry will nearly all fall in and keep there, if the bottle is dry and clean." This plan of trapping ants, though not a new one, is doubtless successful in some cases.

The Seed-Corn Maggot.—J. A. Johnson, La Fayette Co., Mo., writes us: "A pest has been troubling this community since corn first showed itself above ground. It is a small, white worm, about a quarter of an inch in length, found in the roots of corn, two or three in a hill, but, strange to say, the corn is growing and seems healthy. Where do they come from, and is there a remedy against them?" This is, no doubt, the Seed-corn Maggot. The full-grown insect is a two-winged fly, which deposits her eggs in the seed-corn, when the maggots or larvæ develop, gnawing and excavating the substance of the seed, causing it to rot. When full-grown these maggots remain in the earth, where they transform into pupæ from which afterwards the perfect fly emerges. The only remedies which have seemed effective, are soaking the seed-corn in gas-tar or copperas.

1887.

BEGINS NOW.

All **New** Subscribers for 1887, whose subscriptions come to hand before **September 30,** will receive the *American Agriculturist* for October, November and December of this year without extra charge.

The above applies to **All** new subscribers, from whatever source received — including Premium Clubs.

Those too distant to receive this number before **September 30,** will be allowed 10 days after its reception in due course of mail, to take advantage of the above in presenting the paper to their friends.

See page 388 for description of volume given for securing new subscribers.

Muscat Grapes in Texas.—John E. Wallace, Smith Co., Texas, inquires whether "what is known in California as the Muscat grape, would succeed in this section. All others do well here in our sandy soils. There is a man in our vicinity now representing these Muscats, and says they are a wonderful success in California, and he is making people believe they will do here, as he is taking large orders every day to be delivered next February." It is true that Muscats succeed in California, but so far as being a wonderful success in Texas, it can only be told by trying.

The Fair of the American Institute.—This fair, which has become one of the "institutions" of the City of New York, will open its doors for the fifty-fifth time, on Wednesday, September 29th, and continue until some time in November. As in former years, special dates are assigned to exhibitions of fruits, flowers, vegetables, and other horticultural products. The exhibition of plants, flowers, floral designs, etc., will open on Wednesday, October 6th, and continue until Saturday, October 9th. Fruits and vegetables will be exhibited on Wednesday, October 13th. Cereals will be judged, and have premiums awarded on Thursday, October 28th, and may be brought at any time previous to October 27th. A Chrysanthemum Show will be held some time in November, the date to be fixed and announced hereafter. The premiums for all these special shows are numerous and liberal, and should bring out fine displays. Catalogues giving the schedules of premiums may be had of John W. Chambers, Secy., American Institute, Astor Place, New York City.

Is it Mildew?—Mrs. L. A. Fox, Oneida Co., N. Y., sends us a much diseased leaf "of a plant that I prize very highly," and asks, "is it mildew?" The name of the plant should have been given, as it is not made out from this badly diseased leaf. The plant is attacked by a fungus, but not the mildew fungus. Sulphur is the remedy for some kind of fungi, and it would be well to try it upon this, either by dusting the plant with flowers of sulphur, or by the use of the preparation of lime and sulphur, described in August last, page 227, under "Mildew on Grape-vines."

Plastic Stove-Lining.—One of the greatest annoyances to housekeepers, owing to the neglect of servants and other causes, is the destruction of the fire-bricks in ranges and stoves. A gentleman sitting by our side states that annually he is compelled to spend many dollars in purchasing new sets of fire-bricks. This, however, will in the future be obviated by stove-lining prepared ready for use in the form of a plastic cement, and readily applied by anyone. This new substitute or preparation is called the Asbestos Plastic Stove-Lining, and is brought out by the H. W. Johns Manufacturing Company, whose liquid paints we have so frequently recommended to our readers. This lining is durable and inexpensive, and forms an economical lining for stoves, ranges and furnaces, also for repairing stoves, flue joints, broken fire-bricks, etc. This lining will not burn out and clinkers do not attach to it, and the annoyances and expense of obtaining new fire-brick is, as said above, done away with.

A Chrysanthemum Show.—The New York Horticultural Society proposes holding, in November next, a grand Chrysanthemum Show, which is expected to eclipse all previous exhibitions of this favorite autumn flower heretofore held in this country or any other. The exhibition will occupy Cosmopolitan Hall, 42d Street and Broadway. The premiums offered are very liberal, and to insure the Society from any possible loss, a number of members have liberally subscribed to a "guarantee fund." Few are aware of the wonderful improvements that have been made in the Chrysanthemum within a few years, and this show will doubtless present some of the best varieties that the world produces. Those ladies who wear large clusters of the coarse Ox-eye Daisy, and thus make a common weed fashionable, should transfer their affections to the Chrysanthemum, which, in the forms of its flowers, and their many delicate tints, are very superior to those of its coarse relative—the Whiteweed or Ox-eye Daisy.

Chickens in the Garden.—Mr. George Allen, Venango Co, Pa., writes us, with reference to some editorial notes, appended to an article by him in the August number (p. 333), as follows: "After an experience of three seasons, I can answer your objections. In regard to blackberries, the chickens do not trouble the canes at all, and I have had no occasion to shut them out. The raspberries offer too strong a temptation for them, as they like the young shoots, and I have found it necessary to shut them from the raspberries for three or four weeks in June, or until a sufficient number of canes for next years' fruit have grown out of their reach. Currants do splendidly, as they keep down the new shoots, causing them to form little trees, an inch and a half or more in diameter at the base, bearing large and excellent fruit. I have never before raised such fine berries and currants as those raised this year through the chicken coop, and would advise a trial of this plan by anyone having a suitable lot.

Poisoned Dog.—C. A. Weston, Barry Co., Mich., writes us that some friend was kind enough to poison a valuable dog with Paris green, but gave too large a dose, so that as a result the dog did not die. A few days later, the owner noticed some red spots on the eye, which gradually spread, involving the entire eye-ball, both eyes becoming affected, and the dog losing his sight. The cause of this affection is undoubtedly due to arsenical poisoning, and the chances of the dog's gradual regaining his sight are favorable. We recommend an astringent wash, composed of sulphate of zinc, two grains, and distilled water, one ounce, dropped into the eye twice a day. A very few drops at a time is sufficient.

SEE PAGES 387 to 392 FOR MATTERS OF INTEREST.

HARPER'S MAGAZINE

(No. 436)

FOR SEPTEMBER, 1886,

CONTAINS:

SHORT-HORN CATTLE.

By LEWIS F. ALLEN.

ILLUSTRATIONS:

Head-piece.—"*The White Heifer that Travelled.*"—*Duchess, by Daisy Bull.*—*Comet.*—*A Short-Horn Bull.*—*Romeo's Oxford at Eight Years.*—*Group of Short-Horns.*—*Sixth Duke of Geneva at Two Years. Eighth Duchess of Geneva at Three Years.*—*Baron of Oxford at Thirteen Years.*—*Duchess of Niagara at Ten Months.*

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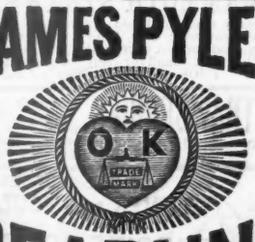

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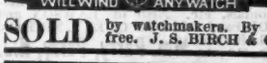

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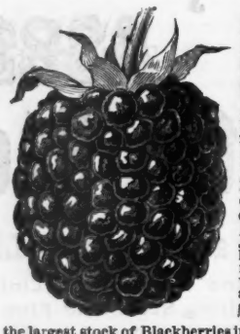
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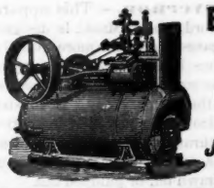
Heebners' Improved Threshing Machine. *Fully warranted.* Send for Catalogue A, with valuable information sent FREE. Sole owners of *Level-tread*-patents. All others infringements. HEEBNER & SONS, Lansdale, Pa.



BOOKWALTER ENGINES

UPRIGHT AND HORIZONTAL,
3 TO 10 HORSE POWER.
OVER 3,000 IN SUCCESSFUL OPERATION.
Illustrated Pamphlet sent free. Address,
JAMES LEFFEL & CO., Springfield, Ohio.
Eastern Office: 110 Liberty St., New York.

This Space is Reserved for the

Scientific Sweep Power & Mill Combined

SOMETHING NEW AND GUARANTEED SUPERIOR.

Don't buy until you have seen it.

THE FOOS MANUFACTURING CO., Springfield, O.

Pennsylvania Agricultural Works, York, Pa.

The Pennsylvania Force-Feed

Fertilizer Grain Drill.

Warranted the most perfect Force-Feed Fertilizer Drill in existence. Send for circular, A. B. FARQUHAR, York, Pa.

THE ROSS

Celebrated
ENSILAGE
—AND—
Fodder Cutters.

These Cutters **guaranteed** to cut **faster**, run **lighter**, do a greater variety and **better** work than any machine made. More Ross Cutters in use for Ensilage than all other machines in the United States combined. Cutters **especially** for Ensilage; **heavy, strong, simple, never** get out of **order**, and last a life-time. Dry Fodder Cutters, 12 sizes, hand and power. Largest machines in the world. The **largest Cutter Factory** in the **United States**, and the ***only*** one building cutters **exclusively** anywhere. Send for our large Illustrated Catalogue "A" 80 pages.

E. W. ROSS & CO. SPRINGFIELD, O.
No. 6 Centre St., Albany, N.Y.

Our Book on Ensilage sent free to all who name this paper.

THE STEVENS PORTABLE MILLS

For **CORN** and **FEED GRINDING**

Genuine French
BUHR STONES
Power Corn Sheller
Prices Below the Lowest
A. W. STEVENS & SON
AUBURN, N. Y.
Mention this paper.

THE SILVER & DEMING

FEED & ENSILAGE CUTTERS

IMPROVED FOR 1886.

Adapted to cutting hay, straw and corn fodder, both green and dry. We make a full line of Cutters for hand and power.

Special inducements made to parties where we have no agent or dealer handling our Cutters. Send for New Price list and full particulars.

Silver & Deming Mfg. Co.
Salem, Ohio.

HORSE POWERS.

LATEST IMPROVEMENT

Machines for SAWING WOOD with **Circular and Cross-Cut Drag Saws.** Also **Machines for THRESHING and CLEANING Grain.**

Acknowledged by all to be

THE BEST

considering

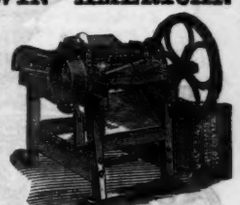
Easy Draft, Durability, Quantity & Quality of Work

48 page pamphlet **Free.** Address **A. W. GRAY'S SONS,**
PATENTEES AND SOLE MANUFACTURERS,
MIDDLETOWN SPRINGS, VERMONT.

THE BALDWIN AMERICAN

ENSILAGE AND FEED CUTTER.

The leader for cutting all kinds of fodder, dry or green. Simplest, strongest and most durable cutters made. Power cutters fitted with the only reliable safety fly-wheel. Straight and angle delivery carriers. Send for new 1886 catalogue.



C. Pierpont & Co.,
Manufacturers,
New Haven, Ct.

THE UNION HORSE-POWER

Has the Largest Track Wheels, DOUBLE GEARED. NO RODS. CHILLED BEARINGS, and LEVEL TREAD.

ILLUSTRATED CATALOGUE FREE.

UNION Thresher Separator and Cleaner, Premium Farm Grist Mill, Feed Cutters, &c.
W. L. BOYER & BRO., PHILADELPHIA, PA.

Doylestown Horse Power.

With either regular incline or level tread track. Has the simplest and most efficient governor made. The **Doylestown Junior Thresher and Cleaner** has no superior. Illustrated Catalogue A sent free. Address sole manufacturer, DANIEL HULSHIZER, Doylestown, Bucks Co., Pa.

The Belle City
FEED AND ENSILAGE CUTTER.

The Best Feed Cutter in the world. Made in all sizes of both Hand and Power Machines. Write to us for a circular before you buy and you will never regret it.

BELLE CITY MFG. CO.,
Racine, Wis.

WHITMAN'S MAGIC FEED MILL

WITH STEEL GRINDERS.

The most perfect Mill for grinding small grain, for feed or family meal, now made. Warranted to grind one-third more with same power than any other.

Manufacturers of Hay Presses, Horse Powers, Corn Shellers, Feed Cutters, Scrapers, &c.

WHITMAN AGRICULTURAL CO., ST. LOUIS, MO.

Our Wonderful Advertising.

That first-class advertisers, notwithstanding the continued business depression, should send to our columns an entire page more of matter than was received for the corresponding month of September last year, affords most gratifying evidence of the confidence reposed in this periodical by the business public. We shall continue to adhere to the rigid policy pursued in the past of excluding all advertisements which we do not believe to be genuine. No doubtful advertisement of any kind will be admitted to these columns, and wherever any of our subscribers and friends do not find things as represented, we shall thank them to immediately write us to that effect.

We repeat to our readers what we have often said before, viz.: That we desire to have our advertising columns as valuable as the reading columns proper, not only as presenting the newest and latest agricultural implements, but affording many suggestions as to what people should have on their farms, in their houses and farm buildings, and elsewhere. Very often the reader discovers in these columns advertisements of new implements, etc., etc., of whose existence they were not before aware. Will all subscribers in writing to advertisers mention the fact that they have seen their advertisements in these columns.

Award of Prizes for Stories.

First Prize ($50.00).—"Chatty MacDonald's Ride," by Miss A. C. Sage, Brooklyn, N. Y.

Second Prize ($30.00).—"A Story of the Sunny South," by Mary J. Grundy, Morrisonville, Ill.

Third Prize ($20.00).—"Sabra's Invitation," by Emma M. F. Grinnell, Three Rivers, Mich.

The large number of manuscripts received in response to the prizes offered have been carefully read by the committee, and their awards are made after no little labor and consideration. Several of the stories are worthy of special mention, though not entitled to prizes under the provisions of the offer.

A Great Fair List.

See our great Fair List, pages 390-92, and accompanying article, page 381. This list surpasses anything of the kind ever issued.

Farm Flour Mills.

A farm mill for grinding grain of any kind into fine flour for family use, which should be durable, easily managed, and at the same time so constructed that its wearing parts may be easily renewed when required, is a great

desideratum. The "Union" Mill, made by the Freeport Machine Co., of Freeport, Ill., the manufacturers claim, "fills the bill." By the use of cast-steel rings in connection with buhr stones, the steel grinding rings, being placed close to the center, crush the grain with much less power, while the lighter work of comminuting it is done by the stone at a distance from the center. This saves the necessity of frequently dressing the stones, which is a vast convenience not to be overlooked by a buyer. The work done is excellent, and the power required remarkably small as compared with most other mills.

These mills are furnished, when desired, with a "shaking bolt," which will bolt the meal as fast as it is ground. The smallest size will grind twelve to thirty bushels an hour, according to the degree of fineness, and larger sizes more in proportion.

The Silo Governor.—This apparatus, invented by S. M. Colcord, Dover, Mass., is designed to remove air and other gases from a silo more speedily and more perfectly than has heretofore been accomplished, and thus produce a sweeter and more wholesome ensilage than that produced in the ordinary way. It consists of a frame of perforated iron pipes placed at the bottom of the silo, and another through the middle, by means of which the air escapes, and the juices not taken up by the ensilage may be drawn off, or pumped out.

HOMES of our FARMER PRESIDENTS.

The next illustration, now in the hands of our artists, will present the home of Andrew Jackson. The description, now in the hands of the printers, is by James Parton. Remember—All subscribers receive these Engravings.

Forty Agricultural Scholarships Free.—Read the very interesting announcement from Rutgers College on page 383. This ought to interest and delight all our farmer boys.

Onions Did Not Keep.—W. W. Brooks, Fairfield Co., Conn., writes us that his onions began to decay very early last year, and asks how to keep them through next winter. The onions should not be harvested until thoroughly ripe, after which they should be spread on the floor in a cool and airy room or loft; as cold weather comes on, the onions are to be covered with hay or straw, or they may then be barrelled, keeping them in a cool place. It does not injure the onions to be frozen, if they are allowed to thaw gradually.

The Ross Fodder Cutters.—These machines, known as Giant and Little Giant, have been achieving a very great success—no doubt, partly by their having been so well advertised in the *American Agriculturist*. The new 80-page illustrated catalogue indicates progress, but the fact that the Company has again outgrown its buildings, and are obliged to rebuild, is a still stronger indication—there is nothing so successful as success.

Pears for Missouri.—J. H. Hasse, Jefferson Co., Mo., proposes to set out a pear orchard, and asks us if he should plant standards or dwarfs; if he shall cultivate the young orchard, or set the trees in a meadow, and hoe and mulch just around them, and asks us to suggest what varieties he had best plant. By all means, plant standards. To cultivate the young orchard with corn, potatoes or other hoed crops, would be vastly better than to set the trees in holes in a meadow. As to varieties, the selection would depend upon the disposition to be made of the fruit—whether it is to be marketed, and where. For marketing, the most generally popular pear is the Bartlett; a large share of all the trees planted are of this variety. Beurre d'Anjou is another very popular market kind, but late; Seckel, though small, is a good market sort; Boussock is increasing in favor. Beurre Bosc, Beurre Clairgean, and Beurre Hardy are excellent varieties. Vicar of Winkfield is the standard pear for cooking. If the fruit is for home use, a number of high quality, but unsuited for market, may be selected from

MISCELLANEOUS ADVERTISING.

Mention this paper in writing to advertisers.

The **only** machine that received an award on both Horse-power and Thresher and Cleaner, at the Centennial Exhibition; was awarded the two last **Gold Medals** given by the New York State Agricultural Society on Horse-powers and Threshers; and is the **only** Thresher selected from the vast number built in the United States, for illustration and description in "Appleton's Cyclopedia of Applied Mechanics," recently published, thus adopting it as the **standard** machine of this country. Catalogue sent free.
Address, **MINARD HARDER**, Cobleskill, Schoharie Co., N. Y.

IMPORTANT TO FARMERS.
Patent Waterproof Fibre Process.
Waterproof cotton **Duck Covers, etc.,** for all farm purposes. Light, cheap material for covering **Agricultural Implements, Wagons, Hay Stacks, Hay Caps, etc.** Several grades **Patent Muslin for Tobacco and Vegetable Plant Beds,** protects from frost, insects, and promotes early, vigorous growth. For circulars, prices, etc., address
U. S. WATERPROOFING FIBRE CO., 56 South St., New York.

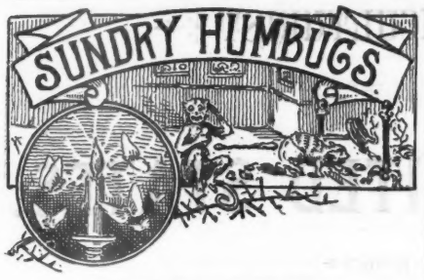
MELLIN'S FOOD
FOR INFANTS AND INVALIDS
TRADE MARK.
The **only perfect substitute** for **Mother's milk.** Invaluable in **Cholera Infantum** and **Teething.** A pre-digested food for **Dyspeptics, Consumptives, Convalescents.** Perfect nutrient in all **Wasting Diseases.** Requires no cooking. Our Book, **The Care and Feeding of Infants,** mailed free.
DOLIBER, GOODALE & CO., Boston, Mass.

"The Farmer will find that thorough cultivation of wheat ground is manure, and that each of his teams earns $10.00 each day they are thus employed." If this is true, how important it is that the farmer should use proper implements for the purpose of pulverizing the soil. See advertisement of the "ACME" Pulverizing Harrow, Clod Crusher and Leveler on page 384.

WANTED!
Active Workers and Canvassers for the *American Agriculturist* at all the State Fairs. Send for particulars.
Address Publishers **AMERICAN AGRICULTURIST, 751 Broadway, New York.**

ORGANS and PIANOS
Manufacturers to the Consumer Direct: Before purchasing an **ORGAN OR PIANO,** send your name and address to us on a postal card, and we will send our illustrated Catalogue **FREE** and at same time make you an offer by which you can save all Agents commissions and Middlemens profits.
AMERICAN ORGAN & PIANO CO., 41 & 43 Malden Lane, New York.

H. W. JOHNS' ASBESTOS LIQUID PAINTS
Descriptive Price List, Samples, &c., Free by Mail.
H. W. JOHNS M'F'G. CO., 87 MAIDEN LANE, NEW YORK,
175 Randolph St., Chicago; 170 No. 4th St., Philadelphia; Billiter House, London.



Don't Touch Them.

Recently recipes for soap making and for making washing compounds have been widely sold. These, especially the washing compound, while they may make the clothes very clean, at the same time will injure both the fabrics and the hands of those who use them. Another useless recipe is for the making of an "Ink Eraser." As a rule, all such recipes should be let alone. They are not worth the price asked.

Curing Baldness.

Many of the newspapers have advertisements of parties who offer and guarantee a cure for baldness. Baldness is honorable, for it is genuine. No one ever imitates a bald head. A good observer can recognize a wig or dyed hair across the street. Baldness is even fashionable—among those who cannot help it. One cannot see too much of a finely-shaped head.

"In Less than Half the Usual Time."

An advertiser in several newspapers of the country proposes to instruct people in the art of stenography in one-half the usual time. Every stenographer knows there is but one way in which to acquire the art, and that is by hard study and faithful practice. Some persons may learn more rapidly than others, but that depends upon the individual rather than the teacher. Thoroughly competent stenographers are in demand, but no one wishes to employ one who, having learned in half the usual time, is but half qualified for the position. Thoroughness in this pays.

Adulterated Molasses.

Some parties in Boston have been prosecuted and tried for the adulteration of molasses. It is alleged that an inferior and cheap article is so changed as to appear like and to be sold for the price of good. Strangely enough, the nature of the fraud was not brought out on the trial. The fact that this popular and generally used form of "sweetning" is tampered with, should put consumers on their guard, and should induce farmers to consider if they cannot produce from some of the improved varieties of sorghum a syrup which shall be superior to and cheaper than any imported molasses.

"Put You in a Way of Making Money."

Mr. J. L. Lapham, Kent Co., Del., has received a letter from B. Tweed, of 6 Prince street, New York City, in which Tweed promises to "Put him in the way of Making Money in a fast, safe and sure manner." He then goes on to say, that he will send particulars in his next letter. Mr. Lapham, in forwarding Tweed's letter, says: "How my address was obtained I do not know, but suppose it was taken from fruit crates bearing my name." We dispatched a representative to reconoiter 6 Prince street, and this is his report: "No. 6 Prince street is a small two-story and basement house, evidently built for a private residence, but now occupied as stationery store in the basement and a beer saloon on the first floor. The occupants did not know Tweed." This probably is the same scamp who is addressing other readers of the *American Agriculturist* under the title of Reed, of 6 Prince street—another of them who appears to have a habitation or a name there. We have no doubt but that both belong to the great body of professional swindlers in this city, who live by fleecing the unsuspecting through the United States mails.

"Show up this Fraud."

The above request is written in large letters across the cover of a small pamphlet sent us by a subscriber. Copies of the same are likewise being forwarded us from other sources. We cannot properly do this, and when we say that the pamphlet claims to be "for men only," the reason will be apparent. The *American Agriculturist* is not "for men only," but for the whole family, and the desire to have nothing in its pages that might not be explained to a child prevents us from treating this pamphlet, and others of a similar character, as they deserve. This document is issued by the "Craigie Capsule Co.," which claims to medicate patients afflicted with certain diseases. We have noticed that the circulars or pamphlets sent out by those who profess to cure diseases of a private nature, act upon the imagination of the patient, and impress him with the fact that his case is serious, and that his only hope is in the prompt application of the particular nostrum. Nothing worse in the way of quackery has come to our notice in a long time than this pamphlet "for men only," apparently just out.

"Flavoring" Watermelons on the Vines.

A Georgia gentleman, we are informed by the statement now appearing in the daily newspapers, has discovered a method of flavoring watermelons while they are growing. "Before the melon ripens he cuts out a slit in the stem one inch long and two-thirds through it. Into this opening the extract or flavoring substance is placed, and then he closes the stem carefully so as to keep out the air, and binds a string around it. The quantity of extract used depends upon the size of the melon." This operation is to be repeated every morning until the fruit is "flavored satisfactorily." How this point is to be ascertained we are not informed. We are glad to learn that this operation is too expensive to be generally used; otherwise city dealers in melons will ask their customers as do the ice cream sellers: "Will you have lemon or vanilla?" and perhaps ginger, peppermint, sassafras and wintergreen will be among the flavors one may be asked to choose from. Seriously speaking, the only way in which a well-ripened watermelon can be improved is to place it on ice before eating. If any reader would stop to think for a moment, they would know that such a method of flavoring as described above is simply absurd, inasmuch as the very act of cutting the stem for several days in succession would prevent the fruit from ripening, if not entirely killing it. And yet this is a specimen of the trash which is going around the country under the head of "agricultural information."

THE AMERICAN AGRICULTURIST
NEW
History of the United States.
Ready September 1st.
Presented for New Subscribers.
See pages 388 and 389.

"With Pictures to Match."

A great deal of paper and printing are required to set forth the merits of "Legrande's Arabian Catarrh Remedy." These kinds of nostrums are usually discovered a long way off, and this had its origin in Arabia, and was discovered by a clergyman at that place. One of the circulars, which are being sent to subscribers of the *American Agriculturist*, is illustrated by

FOUR MARGINAL PICTURES.

In the first we see a young lady sitting between two opposite open windows, reading and "catching cold in the head" at the same time. The next picture shows a doctor feeling the pulse of the same young lady, and telling her that she has "only catarrh." We may infer that the catarrh developed into consumption, as the third tableau presents several friends gathered around what is evidently a death-bed. The last scene of all is labelled "Death." It shows the lowering of an enormous coffin into a grave, with picks and shovels lying about, and friends assembled around the grave. The circular tells us that the friends "go home and talk over the sad affair. Yes, dear reader, **'she might have been saved'** if some physician who thoroughly understood this horrible disease had been consulted. Had she written to me and explained her case fully, **'she might have been saved!'**"

"A SURE CURE!!"

These circulars claim that this Arabian Remedy is "a positive cure." That it is "the greatest Remedy of the age;" that it is "a sure cure." But the strangest feature of all is, that these and all other extravagant claims as well as the sensational pictures referred to, are issued over the name of one who claims to be an M.D. Among the documents we find a copy of this Doctor's diploma issued in England. Also a portrait of him as "A Famous Physician," and a biographical sketch of the same, in which it is implied that this "physician" is still in good standing among medical men. Such a thorough quack as these circulars show him to be, could not associate among decent professional men, whatever standing he may have had previously. Having joined himself to this "Arabian" stuff, he has forfeited all claims to be regarded as a member of the medical profession.

He Wants a Wife.

An "honorable gentleman," who is a "stranger" in Gotham, "but independent" as to circumstances, advertises in the papers that he "desires to correspond with a good, intelligent lady with means—object, matrimony and for no other purpose." This very "honorable gentleman's" proposition recalls the reception Mr. Coldcash extended to the adventurer who sought the hand of his daughter.

"Mr. Coldcash, I have come to ask for the hand of your daughter."—"My daughter, sir?"—"Yes; I can't live without her."—"Well, sir, finish your sentence."—"Finish my sentence?"—"Yes, you were about to say you could not live without *her income*. Let us be frank, my dear sir."

Every now and then the courts furnish the sequel to matrimonial engagements that follow advertisements in the newspapers. Recently a case in Flushing, L. I., terminated in a suit for breach of promise. An advertisement in the "Personals" announced that a man of thirty-two, with $5,000, wished to form the acquaintance of a woman who wanted a good husband. A widow in Flushing, whose former husband left her $30,000, answered the advertisement; an engagement with the advertiser followed and the wedding day was appointed. Wishing to settle up some business in Boston, the man borrowed $9,000 of the widow, and failed to keep the appointment to be married on June 17th. He was afterwards heard of in Chicago and St. Louis.

"Green Corn."

Those who deal in counterfeit greenbacks, or are engaged in what we have so often described as the sawdust game, have applied a variety of terms to these greenbacks, when alluding to them in their circular letters to people out of town. In the early circular letters they were called simply "Goods;" afterwards they were "Green Goods." At one time they were generally called "Cigars" of various sizes; pictures and other portraits of distinguished men are among the names that are given to them. The latest name under which counterfeit greenbacks are offered is "Green Corn." Here is a circular, which Mr. A. G. Nettleton, of Cook Co., Ill., and other subscribers are receiving, and which is so very fresh and very green, we publish it entire:

NEW YORK, July 3, 1886.

DEAR SIR:—Your name has been mentioned to me by a friend of yours and mine, he said you was a person that I could trust with a secret, which I hope and trust you will keep. I have a line of *Green Corn* which is not canned Green Corn But the *Genuine Green Corn*, and the Sizes of The *Corn* Are 5.s. 10.s. 20.s. if You think You Can use any of these goods I will Sell them To You as follows. For $125.00 I will give You

1.000 in Goods..... $250.00
2.500 in Goods..... $500.00
7.000 in Goods..... $800.00

15.000 in Goods of course the more of a Stock you Buy At one time the Cheaper You Can Buy them. Do not Let the expenses and time keep you from Coming to Buy *Goods* As I will allow you liberally for Your expenses and time of Coming on. These *Goods* cannot be detected by the most expert Expert Judges in the Country. So you Can See that their is a Fortune to be made in a very Short time. if you are open For Business let me know by return Mail.

Yours in Confidence

P.S. if I have your address right you need not Sign your Name to Any of Your Letters. But Sign No. 7 N as it is a Prevention in Case the letter goes astray. if I have not Your Correct address please let me Have it

(Here follows the name.)
—— 3rd Avenue,
New York City.

In forwarding this interesting circular, Mr. Nettleton writes us: "The enclosed valuable document comes to my suburban home. The same old story, 'a friend of mine and yours, etc.,' but that 'Green Corn, which is not canned Green Corn but the *Genuine Green Corn*' is new—yes, rich, rare and racy! To a business man this hook with no bait—not even a little angle worm—presents no attraction. Are these persons in the country so unwary as to be caught by it?"

We regret to inform Mr. Nettleton that we are constantly receiving communications from individuals whose greed has led them to bite at just such "Green Corn."

THE AMERICAN AGRICULTURIST

NEW

HISTORY OF THE UNITED STATES.

READY SEPTEMBER 1, 1886.

PRESENTED FOR NEW SUBSCRIBERS.

We have the pleasure of announcing to the readers of the *American Agriculturist* the immediate publication of a volume, which should be in every home in this country. We allude to the "History of the United States," by Everit Brown, of New York city. The closing pages of this invaluable work are now in the hands of the printers, and a few days' time from this writing we shall be prepared to furnish copies to subscribers—that is, **Sept. 1st.** The orders for the History will be immediately filled in succession as they are received by us.

When two years ago the publishers of the *American Agriculturist* offered the valuable Cyclopædia to its readers, large numbers in every portion of the land hastened to embrace the offer then made. Indeed, before the offer closed upward of **forty thousand people** had secured this volume, and it is a pleasure to us to know that it now rests upon the library shelves, or graces the center tables, as a standard reference work. It is furthermore a great gratification to know, that we supplied this book **free** to so many homes who would otherwise not have been able to possess a Cyclopædia, combining as does this Cyclopædia all the more valuable features of the expensive works. Of all this vast number of individuals who sent for this Cyclopædia (these tens of thousands of subscribers) not a single one expressed dissatisfaction, but on the contrary thousands and thousands of the recipients wrote us, expressing their pleasure and gratification at receiving so valuable a work.

We are now happy to be able to supply the subscribers of the *American Agriculturist*, without cost, this **new volume, equally as valuable and interesting.**

The growth of the United States is so rapid and life is so active, that no history claiming to be a complete history of the United States can be so considered, which is not re-written every few years. The events of a whole lifetime, for example, were compressed into four years, when the unhappy civil war brought the people of the two sections in conflict. Since the close of the strife an entire new generation has grown up. The population of the United States has more than doubled, and during the period of reconstruction and peace, civil events have crowded upon one another with unparalleled rapidity. Everything pertaining to the war is read with interest by those born since its close, while those of maturer years, who may be said to have been a part of the war period, are interested in recalling the events following each other in rapid succession for twenty-five years.

From Christopher Columbus to the Death of Samuel J. Tilden.

The Letter Press.

This new history, to be ready September 1st, comprises all of the earlier as well as the latest events in the history of the United States, from Christopher Columbus' discovery of America to the death of Samuel J. Tilden. Our author narrates events in detail, giving full and authentic accounts of the Norsemen, the Discoveries and Explorations of Columbus and the Cabots, Spanish, French, English and Dutch Explorations, the Landing of the Pilgrim Fathers, the Indians and their Wars, the Colonies, their settlement and growth, the States and their settlement, the French and Indian Wars, the Revolution and its Battles, the Administration of each President from Washington to Grover Cleveland, the Civil War, the Record of its Battles and the Gallant Officers of the Army and Navy, the Emancipation of 4,000,000 Slaves, Reconstruction and Peace, Political History, 1865–'86.

The Illustrations.

There are sixty different illustrations, embracing portraits of all the Presidents of the United States and the leading Generals, including Grant, Sherman, Sheridan and others, all specially engraved for this work; there are likewise portraits of Lee and Davis among the Southern chieftains. The engraving of Abraham Lincoln on the opposite page conveys some idea of the accuracy and truthfulness of these illustrations. The descriptive scenes of engagements on land and sea during the Civil War are very spirited, while the historical engravings, covering the whole period of the Nation's growth and development, add not a little to the attractiveness and value of this volume.

Valuable Supplementary Pages.

In addition to the history proper, there are seventy-five pages of valuable reference, containing—First, the compact signed in the cabin of the May Flower; second, the Constitution of the United States; third, Washington's Farewell Address; fourth, the Emancipation Proclamation; fifth, the Chronological History of the United States; sixth, Census Reports; seventh, the Political Tables, etc.

How Printed.

This volume, which comprises over six hundred pages, is printed on heavy super-calendar book paper, is handsomely bound in cloth, gold, and ink titles, making a companion volume for the Cyclopædia and Law Book. See sample pages opposite.

OUR FREE OFFER.

We will present this invaluable Volume, postpaid, to any person in the United States or British America who sends us one new subscriber to the *American Agriculturist*, at the regular rate of $1.50 per year, before September 30, 1886.

Furthermore, any person sending more than one new subscriber will be presented with one book for each subscriber he sends.

And Furthermore, where ten new subscripers are forwarded, the sender will receive an extra copy—that is, eleven books; and, if he chooses, he can therefore present each new subscriber with a history and have a free copy for himself.

In addition, every new subscriber sent in under this offer before September 30th will receive the *American Agriculturist* for all of 1887, and be presented with the remaining three numbers of this year free.

This History contains 600 Pages and is Handsomely Bound in Cloth.

[SEE OPPOSITE PAGE, ALSO PAGE 382.]

CHAPTER XXXIII.

THE REVOLUTION—1775.

Paul Revere's ride—The battles of Lexington and Concord—Effect on the country—Israel Putnam—Ethan Allen captures Ticonderoga—The battle of Bunker Hill—The Americans retreat—Congress—Washington elected commander-in-chief—Sketch of his life—Assumes command—The Virginia patriots—Northern expeditions—Montgomery captures Montreal—Benedict Arnold's march—Assault on Quebec—Montgomery killed—Arnold is wounded and withdraws—The Americans driven from Canada.

General Gage, learning that some of the colony's ammunition was concealed at Concord, sixteen miles from Boston, on the night of April 18, 1775, dispatched a force of 800 men, under Colonel Smith, to destroy the stores. The patriots discovered his intention. From the tower of the Old North church shone the signal-light that had been agreed on. Paul Revere and William Dawes set off by different routes to alarm the militia. By hard rid-

LANTERN IN OLD NORTH CHURCH GIVING NOTICE TO PAUL REVERE.

ponent he gained a national reputation. On the 4th of March, 1861, at the age of fifty-two, he took the oath of office, and entering on his Presidential duties at a peculiarly trying time, he managed the affairs of the nation with great wisdom and fidelity. His genial

Abraham Lincoln.

nature, strong will, and conscientious motives have endeared his memory to the nation.

Lincoln's inaugural address declared his intention of enforcing the laws, preserving the Union, and retaking the public property which had been seized by

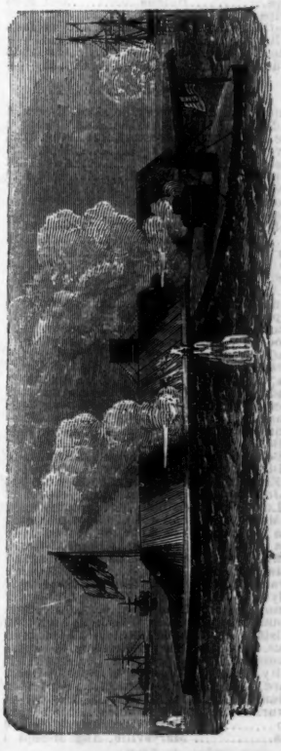
brilliant exploits of the war. Early's army had been cut to pieces.

SHERIDAN'S ARRIVAL AT CEDAR CREEK.

Grant, meanwhile, had been prosecuting the siege of Petersburg with vigor. On the 30th of July a mine

The losses of the latter were over 10,000 and of the former nearly 12,000.

Such were the campaigns in the west during the year 1862. But in Virginia and along the Atlantic coast important events had also occurred. In the beginning of the year a Federal armament of land and naval forces had been fitted out under General Burnside and Commodore Goldsborough. Early in February the fleet arrived at Roanoke Island, which was fortified by several batteries, and the fortifications were carried one after another. Newbern was the next object of attack. The soldiers were landed and the city was captured after a severe battle on the 14th of March. Beaufort was then occupied, and on the 25th of April Fort Macon, which commanded the harbor, was taken. In the meantime Fort Pulaski, at the mouth of the Savannah River, further south, was captured on the 11th of April by General Gillmore. This victory enabled a close blockade to be maintained on the port of Savannah.



NAVAL DUEL BETWEEN THE MONITOR AND THE MERRIMAC.

Sample Pages of the American Agriculturist New History of the United States.

State, County and Other Fairs in 1886.

PREPARED EXPRESSLY FOR THE AMERICAN AGRICULTURIST.

STATE, PROVINCIAL, etc.

Alabama	Montgomery	Nov. 8-13
Am'can Fat Stock Show	Chicago, Ills	Nov. 8-19
Am. Institute	New York	——
California	Sacramento	Sept. 6-18
Connecticut	Danbury	Oct. 5-9
Connecticut	Meriden	Sept. 14-17
Dakota	Huron	Sept. 6-10
Delaware	Dover	Sept. 27-Oct. 2
Georgia	Macon	Oct. 25-Nov. 6
Illinois	Chicago	Sept. 6-10
Indiana	Indianapolis	Sep.27-Oct.2
Iowa	Des Moines	Sept. 6-10
Kansas	Topeka	Sept. 20-25
Kentucky	Lexington	Aug. 31-Sept. 4
Maine	Bangor	Aug. 31-Sept. 3
Maine	Lewiston	Sept. 14-17
Massachusetts	Boston	Oct. 5-8
Michigan	Jackson	Sept. 13-17
Minnesota	St. Paul	Sept. 6-11
Missouri	Kansas City	Oct. 28-30
Missouri	St. Louis	Oct. 4-9
Montana	Helena	Aug. 23-28
Nebraska	Lincoln	Sept. 10-17
Nevada	Reno	Oct. 4-9
New Hampshire	Manchester	Sept. 15-17
New Jersey	Waverly	Sept. 13-17
New Mexico	Albuquerque	Sept.28-Oct.1
New York	Utica	Sept. 23-28
North Carolina	Raleigh	Oct. 25-30
Ohio	Columbus	Aug. 31-Sept. 3
Ohio	Toledo	Sept. 6-11
Ontario	Guelph	Sept. 20-25
Ontario	Hamilton	Sept. 27-Oct 1
Ontario	Toronto	Sept. 16-18
Oregon	Salem	Sept. 13-18
Pennsylvania	Phila	Sept. 6-18
Rhode Island	Providence	Sept. 20-24
South Carolina	Columbia	Nov. 9-12
Texas	Dallas	Oct. 26-Nov. 6
Vermont	Burlington	Sept. 6-10
Virginia	Richmond	Oct. 20-22
Wash. Ty	Walla Walla	Sept. 6 11
West Virginia	Clarksburg	Sept. 14-16
West Virginia	Wheeling	Sept. 6-11
Wisconsin	Milwaukee	Sept. 20-24
Wyoming	Cheyenne	Sept. 14-17

COUNTY AND DISTRICT FAIRS.

ALABAMA.

Barbour	Eufaula	Nov. 15-20
Dale	Ozark	July 22 ——
Dallas	Orrville	Oct. 26-30
Limestone	Athens	Oct. 5 ——
Madison	Huntsville	Oct. 1 ——
Madison	Huntsville	Oct. 12-17
Montgomery	Montgomery	Nov. 4 ——
Montgomery	Montgomery	Nov. 8-14

ARIZONA.

Maricopa	Phoenix	Nov. 15-20

ARKANSAS.

Brew	Monticello	Oct. 13-16
Independence	Batesville	Oct. 19-24
Jefferson	Pine Bluff	Oct. 4 7
Newton	Jasper	Oct. 6 ——
Phelps	Helena	Oct. 21-24
Phillips	Helena	Oct. 19-23
Sebastian	Ft. Smith	Oct. 13-16
Van Buren	Clinton	Aug. 14 ——
White	Judsonia	Oct. 13-15
Woodruff	Lonoke	Oct. 14——

CALIFORNIA.

Alpine	Placerville	Aug. 31-Sept. 4
Amador	Placerville	Aug. 31-Sept. 4
Butte	Chico	Aug. 17-23
Calaveras	Stockton	Sept. 21-25
Colusa	Chico	Aug. 17-23
Contra Costa	Concord	Sept. 6-10
Del Norte	Rohnerville	Sept. 21-24
El Dorado	Placerville	Aug. 31-Sept. 4
Fresno	Stockton	Sept. 21-25
Humboldt	Rohnerville	Sept. 21-24
Inyo	Los Angeles	Oct. 11-16
Kern	Stockton	Sept. 21-25
Lake	Lakeport	Oct. 5-8
Lassen	Greenville	Sept. 20-24
Los Angeles	Los Angeles	Oct. 11-16
Marin	Petaluma	Aug. 23-28
Mariposa	Stockton	Sept. 21-25
Merced	Stockton	Sept. 21-25
Modoc	Greenville	Sept. 20-24
Mono	Placerville	Aug. 31-Sept. 4
Monterey	Salinas City	Sept. 28-Oct. 2
Napa	Petaluma	Aug. 23-28
Nevada	Glenwood Park	Aug. 24-28
Placer	Glenwood Park	Aug. 24-28
Plumas	Greenville	Sept. 11 —
Sacramento	Sacramento	Sept. 16-18
San Beinto	Salinas City	Sept. 28-Oct. 2
San Bernardino	Los Angeles	Oct. 11-16
San Diego	Los Angeles	Oct. 11-16
San Francisco	San Francisco	Aug. 7-14
San Joaquin	Stockton	Sept. 21-25
San Luis Obispo	Salinas	Sept. 28 Oct. 2
San Mateo	San Jose	Sept. 27-Oct. 2
Santa Barbara	Los Angeles	Oct. 11-16
Santa Clara	San Jose	Sept. 27-Oct. 2
Santa Cruz	Santa Cruz	Aug. 3-7
Shasta	Yreka	Sept. 29-Oct. 2
Sierra	Greenville	Sept. 20-24
Siskiyou	Yreka	Sept. 29-Oct. 2
Solano	Petaluma	Aug. 23-28
Sonoma	Santa Rosa	Aug. 16-21
Stanislaus	Stockton	Sept. 21-25
Sutter	Marysville	Aug. 31-Sept. 4
Tehama	Chico	Aug. 17-23
Trinity	Yreka	Sept. 29-Oct. 2
Tulare	Stockton	Sept. 21-25
Tuolumne	Stockton	Sept. 21-25
Ventura	Los Angeles	Oct. 11 16
Yolo	Marysville	Aug. 31-Sept. 4
Yuba	Marysville	Aug. 31-Sept. 4

COLORADO.

Boulder	Boulder	Sept. 13 ——
Gunnison	Gunnison	Oct. 13-16
Larimer	Ft. Collins	Sept. 21-24
Weld	Greeley	Sept. 28-Oct. 1

CONNECTICUT.

Fairfield	Norwalk	Sept. 14-17
Fairfield	Danbury	Oct. 4-9
Hartford	Southington	Sept. 28-29
Litchfield	Watertown	Sept. 21-23
Middlesex	Chester	Oct. 6——
Middlesex	Westbrook	Oct. 13——
New London	Norwich	Sept. 21-23
Tolland	Rockville	Oct. 5-7
Windham	Brooklyn	Sept. 21-23

DAKOTA.

Beadle	Huron	Sept. 2-5
Bonhomme	Tyndall	Aug. 23-25
Brown	Columbia	Sept. 23-25
Campbell	La Grace	Oct. 5-7
Charles Mix	Castila	Sept. 16-18
Clark	Clark	Oct.
Clay	Vermillion	Sept. 21-23
Davison	Mitchell	Aug. 30-Sept. 3
Deuel	Gary	Sept. 16-17
Edmunds	Ipswich	Sept. 21-24
Grand Forks	Grand Forks	Sept. 13-18
Hamlin	Estelline	Sept. 21-23
Lake	Madison	Sept. 22-25
McCook	Salem	
Miner	Howard	
Minnehaha	Sioux Falls	Sept. 21-24
Nelson	Grand Forks	Sept. 1-3
Pennington	Rapid City	Sept.
Ramsey	Devil's Lake	Sept. 22-24
Sanborn	Diana	Sept. 22-24
Spink	Ashton	Sept. 22-25
Day	Webster	Sept. 22-24
Welsh	Grafton	Sept. ——

DELAWARE.

Kent	Dover	Sept. 27-Oct. 1

FLORIDA.

Duval	Jacksonville	Feb. 17——

GEORGIA.

Bibb	Macon	Oct. 25-Nov. 6
Bibb	Macon	Nov. 1-10
Cherokee	Macon	Oct. ——
Dougherty	Isabella	Nov. 1 —
Fulton	Atlanta	
Taylor	Butler	Dec. 1 ——

ILLINOIS.

Adams	Camp Point	Aug. 30-Sep. 3
Boone	Belvidere	Sept. 7-10
Brown	Mt. Sterling	Aug. 23-27
Bureau	Princeton	Sept. 14-17
Bushnell	Bushnell	Sept. 13-17
Carbondale	Carbondale	Oct. 11-15
Carroll	Mt. Carroll	Sept. 28-Oct. 1
Cass	Virginia	Aug. 21-27
Champaign	Champaign	Aug. 24-27
Christian	Pana	Sept. 21-25
Coles	Charleston	Sept. 7-11
Cook	Chicago	Sept. 6-10
Cook	Chicago	Nov. 8-16
Cumberland	Toledo	Sept. 15-18
Crawford	Robinson	Sept. 21-24
DeKalb	Sycamore	Sept. 21-24
DeWitt	Farmer City	Aug.31-Sept. 3
DeWitt	Clinton	Sept. 13-17
Douglass	Tuscola	Sept. 15-17
Du Page	Wheaton	Oct. 5-7
Edgar	Paris	Aug. 30-Sept. 3
Edwards	Albion	Sept. 28-Oct. 1
Ford	Piper City	Sept. 21-23
Fayette	Vandalia	Sept. 13-15
Franklin	Benton	Sept. 21-24
Fulton	Canton	Sept. 7-10
Gallatin	Shawneet'n	Aug. 31-Sept. 4
Green	Carrollton	Oct. 19-22
Hamilton	McLeansboro	Sept. 14-17
Hancock	Warsaw	Aug. 24-27
Hancock	Carthage	Sept. 6-10
Hardin	Elizabethtown	Aug. 24-27
Henderson	Biggsville	Sept. 21-24
Henry	Cambridge	Aug. 30-Sept. 3
Iroquois	Watseka	Aug. 17-21
Jackson	Carbondale	Oct. 11-15
Jasper	Newton	Sept. 14-17
Jefferson	Mt. Vernon	Oct. 7-10
Jersey	Jerseyville	Oct. 12-16
Jo Daviess	Warren	Sept. 21-24
Jo Daviess	Galena	Oct. 5-8
Kankakee	Knoxville	Aug. 30-Sept. 3
Kendall	Yorkville	Aug. 31-Sept. 3
Knox	Knoxville	Aug. 30-Sept. 2
Lake	Libertyville	Sept. 20-23
Lake	Waukegan	Sept. 27-Oct. 2
La Salle	Mendota	Aug. 30-Sept. 3
Livingston	Fairbury	Sept. 13-16
Logan	Lincoln	Aug. 30-Sept. 3
Logan	Atlanta	Sept. 7-10
McDonough	McComb	Sept. 7-10
McHenry	Marengo	Sept. 1-4
McHenry	Woodstock	Sept. 14-17
McLean	Bloomingt'n	Aug 31-Sept. 3
Macoupin	Carlinsville	Aug. 31-Sept. 3
Marion	Centralia	Sept. 14-17
Marion	Salem	Sept. 21-24
Marshall	Wenona	Sept. 20-24
Mason	Havana	Sept. 14-17
Menard	Petersburg	Sept. 7-10
Mercer	Aledo	Sept. 21-24
Montgomery	Hillsboro	Sept 28-Oct. 1
Moultrie	Sullivan	Sept. 21-24
Ogle	Rochelle	Sept. 14-17
Ogle	Oregon	Sept. 21-24
Ogle	Ogle	Sept. 21-24
Ottawa	Ottawa	Aug. 3-6
Perry	Pinckneyville	Oct. 5-8
Piatt	Monticello	Aug. 16-20
Pike	Pittsfield	Sept. 7-10
Pope	Golconda	Oct. 1-4
Randolph	Sparta	Oct. 13-15
Randolph	Chester	Oct. 19-22
Richland	Olney	Sept. 7-10
Rock Island	Hillsdale	Sept. 8-10
Rock Island	Pt. Byron	Sept. 14-16
St. Clair	Belleville	Oct. 12-15
Saline	El Dorado	Aug. 24-28
Saline	Harrisburg	Sept. 7-10
Schuyler	Rushville	Aug. 17-20
Shelby	Shelbyville	Sept. 14-18
Stark	Toulon	Sept. 14-17
Stark	Wyoming	Sept. 7-10
Tazewell	Delavan	Sept. 13-17
Tazewell	Mackinaw	Sept. 14-17
Union	Anna	Aug. 31-Sept. 3
Union	Jonesboro	Sept. 14-17
Vermillion	Catlin	Aug. 31-Sept. 3
Vermillion	Hooperstown	Aug. 23-27
Vermillion	Danville	Sept. 13-28
Wabash	Asbury Chapel	Sept. 2-3
Warren	Monmouth	Sept. 14-17
White	Carmi	Sept. 7-10
Whiteside	Sterling	Aug. 23-27
Whiteside	Morrison	Sept. 24-27
Whiteside	Albany	Aug. 31 Sept. 3
Will	Joliet	Aug. 10——
Williamson	Marion	Sept. 28-Oct. 1
Winnebago	Rockford	Aug. 30-Sept. 3
Woodford	El Paso	Sept. 20-24

ILLINOIS DISTRICT.

LaSalle	Ottawa	Aug. 3——
LaSalle	Streator	Aug. 17——
McDonough	Bushnell	Sept. 13-19
Union	Avon	Sept. 21-24

INDIANA.

Allen	Fort Wayne	Sept. 14-17
Blackford	Montpelier	Sept. 28-Oct. 1
Boone	Lebanon	Aug. 16-20
Cass	Logansport	Sept. 14-18
Clark	Charleston	Aug. 27-30
Clinton	Frankfort	Aug. 23-27
Daviess	Washington	Oct. 4-10
Dearborn	Lawrenceburg	Aug. 24-28
Decatur	Greensb'g	Aug. 31-Sept. 4
DeKalb	Waterloo	Oct. 4-9
Delaware	Muncie	Aug. 17-21
Elkhart	Goshen	Sept. 14-17
Fountain	Covington	Sept. 21-24
Fulton	Rochester	Sept. 22-25
Gibson	Princeton	Sept. 15-18
Grant	Marion	Aug. 31-Sept. 3
Greene	Linton	Oct. 4-8
Hamilton	Noblesville	Aug. 23-27
Hancock	Greenfield	Aug. 24-27
Harrison	Corydon	Sept. 6-10
Henry	New Castle	Aug. 10-14
Howard	Kokomo	Sept. 13-17
Huntington	Huntington	Sept. 21-25
Jackson	Brownstown	Sept. 7-11
Jasper	Rensselaer	Sept. 7-11
Jay	Portland	Sept. 28-Oct. 1
Jennings	No. Vernon	Aug. 10-14
Johnson	Edinburgh	Sept. 20-24
Knox	Vincennes	Oct. 11-16
La Grange	La Grange	Sept. 23-Oct. 1
Lake	Crown Point	Sept. 14-17
La Porte	La Porte	Oct. 5-7
Lawrence	Bedford	Sept. 15-18
Madison	Anderson	Sept. 6 10
Marion	Acton	Aug. 30-Sept. 3
Martin	Loogootee	Sept. 7-11
Miami	Macy	Oct. 6-8
Monroe	Bloomington	Sept. 21-25
Montgomery	Crawfordsville	Sept. 7-11
Newton	Morocco	Sept. 6-10
Noble	Kendallville	Oct. 5-8
Noble	Ligonier	Oct. 12-15
Orange	Paoli	Sept. 1-4
Owen	Gosport	
Parke	Rockville	Sept. 16-21
Perry	Rome	Oct. 4-9
Perry	Tell City	Sept. 28-Oct. 2
Pike	Petersburg	Aug. 28-Sep. 4
Porter	Valparaiso	Sept. 14-17
Posey	New Harmony	Sept. 14-17
Pulaski	Francisville	Oct. 5-8
Randolph	Winchester	Sept. 14-17
Ripley	Osgood	Aug. 17-20
Rone	Lebanon	Aug. 16-20
Rush	Rushville	Sept. 14-17
St. Joseph	South Bend	Sept. 20-24
Shelby	Shelbyville	Sept. 7-11
Steuben	Angola	Oct. 11-16
Sullivan	Sullivan	Sept. 6-11
Switzerland	East Enterprise	Sept. 14-17
Tippecanoe	Lafayette	Aug. 30-Sept. 4
Tipton	Tipton	Sept. 20-24
Union	Union City	Sept. 20-24
Vigo	Terre Haute	Sept. 13-17
Wabash	Wabash	Sept. 14-17
Warren	W. Lebanon	Aug.31-Sept. 4
Warrick	Booneville	Aug. 24-28
Washington	Salem	Sept. 14-17
Wayne	Dalton	Sept. 7-10

INDIANA DISTRICT, ETC.

Clinton	Kilmore	Aug. 24 ——
Dearborn	Aurora	Aug. 17-20
Grant	Fairmount	Sept. 20-24
Henry	Knightstown	Aug. 31 —
Henry	Middletown	Aug. 24-27
Howard	Poplar Grove	Sept. 6-10
Huntington	Warren	Sept. 7-10
Jay	Dunkirk	Aug. 31-Sept. 3
Johnson	Urmeyville	Oct. 7-9
Knightstown	Knightst'n	Aug.31-Sept. 3
Lawrence	Lawrence	Sept. 14-17
Marion	Indianapolis	Sept. 27-Oct. 2
Marion	Lawrence	Aug. 24—
Miami	Xenia	Aug. 7-12
Montgomery	New Ross	Aug. 9-14
Newton	Kentland	Aug. 31-Sept. 3
Orange	Orleans	Sept. 21-25
Parke	Bridgeton	Aug. 23-28

INDIAN TERRITORY.

Creek Nation	Muscogee	Sept. 28-Oct. 1

IOWA.

Adams	Corning	Sept. 20-24
Allamakee	Waukon	Sept. 14-17
Appanoose	Moulton	Sept. 21-24
Audubon	Audubon	Sept. 14-17
Benton	Vinton	Sept. 20-24
Boone	Ogden	Sept. 29-Oct. 2
Buchanon	Independence	Sept. 6-9
Carroll	Manning	Sept. 13-17
Cass	Atlantic	Sept. 28-Oct. 1
Cedar	Mechanicsville	Sept. 15-17
Cerro Gordo	Mason City	Sept. 14-16
Chickasaw	New Hampton	Sept. 14-17
Clarke	Osceola	Sept. 14-17
Clay	Spencer	Sept. 15-17
Clayton	McGregor	Sept. 7-9
Clayton	Strawberry P't	Sept. 21-24
Clinton	De Witt	Sept. 14-17
Crawford	Denison	Sept. 15-17
Dallas	Adel	Sept. 14-17
Davis	Bloomfield	Sept. 28-Oct. 1
Decatur	Leon	Sept. 14-17
Delaware	Manchester	Sept. 14-17
Des Moines	Burlington	Sept. 13-18
Fayette	West Union	Sept. 14-17
Floyd	Charles City	Sept. 22-24
Franklin	Hampton	Sept. 13-15
Greene	Jefferson	Sept. 15 18
Grundy	Grundy Centre	Sept. 21-23
Guthrie	Guthrie Center	Sept. 21-24
Guthrie	Menlo	Sept. 21-24
Hamilton	Webster C'y	Sept. 28-Oct. 1
Hancock	Britt	Sept. 21-23
Hardin	Eldora	Sept. 14-17
Harrison	Dunlap	Sept. 29-Oct. 1
Henry	Winfield	Sept. 28-30
Humboldt	Humboldt	Sept. 28-30
Ida	Ida Grove	Sept. 15-18
Iowa	Marengo	Sept. 14-16
Jackson	Maquoketa	Sept. 21-24
Jasper	Newton	Sept. 21-24
Jefferson	Fairfield	Aug. 31-Sept. 1
Johnson	Iowa City	Aug. 31-Sept. 3
Jones	Monticello	Aug. 30-Sept. 2
Keokuk	Richland	Sept. 21-24
Keokuk	What Cheer	Sept. 14-17
Kossuth	Algona	Sept. 28-30
Lee	Donelson	Sept. 14-17
Louisa	Wapello	Aug. 16-20
Lucas	Chariton	Sept. 13-16
Madison	Winterset	Oct. 5-7
Mahaska	New Sharon	Sept. 22-24
Mahaska	Oskaloosa	Aug. 30-Sept. 3
Marion	Knoxville	Aug. 26-27
Mills	Malvern	Sept. 28-30
Mitchell	Osage	Sept. 15-17
Monona	Onawa	Sept. 22-24
Monroe	Albia	Sept. 21-24
Montgomery	Red Oak	Sept. 13-18
Muscatine	Muscatine	Sept. 2-4
Osceola	Sibley	Sept. 7-9
Page	Clarinda	Sept. 7-11
Palo Alto	Emmettsburg	Sept. 22-23
Polk	Des Moines	Sept. 3-10
Poweshiek	Brooklyn	Sept. 16-18
Ringgold	Mt. Ayr	Sept. 28-Oct. 1
Sac	Odebolt	Sept. 22-25
Sac	Sac City	Sept. 15-17
Scott	Davenport	Sept. 7-10
Shelby	Harlan	Sept. 22-24
Sioux	Orange City	Sept. 21-24
Story	Nevada	Sept. 14-17
Tama	Tama City	Sept. 14-17
Taylor	Bedford	Sept. 14-17
Union	Afton	Sept. 22-24
Union	Laporte City	Sept. 14-16
Union	W. Liberty	Sept. 14-16
Van Buren	Keosauqua	Sept. 14-17
Wapello	Ottumwa	Aug. 16-20
Washington	Washington	Aug.30-Sept. 3
Wayne	Corydon	Aug.30-Sept. 3
Webster	Ft. Dodge	Sept. 21-23
Winneshiek	Decorah	Sept. 6-10
Worth	Plymouth	Sept. 13-15
Wright	Clarion	Sept. 14-17

IOWA DISTRICT.

Boone	Boone	Sept. 14-17
Clayton	National	Sept. 7-10
Harrison	Missouri Valley	Oct. 4-7
Henry	Mt. Pleasant	Sept. 30-Oct. 2
Keokuk	Sigourney	Sept. 14-17
Lee	Keokuk	Sept. 14-17
Mahaska	Oskaloosa	Aug. 30-Sept. 1
Muscatine	W. Liberty	Sept. 14-16
Page	Shenandoah	Sept. 21-24
Sac	Sac City	Sept. 15-17
Scott	Mt. Joy	Sept. 7-10
Tama	Traer	Sept. 1-3
Van Buren	Milton	Aug. 31-Sept. 3
Wapello	Agency	Sept. 14-17

KANSAS.

Anderson	Garnett	Aug. 24-27
Barber	New Klowa	——
Bourbon	Fort Scott	Oct. 5-8
Brown	Hiawatha	Sept. 14-17
Butler	El Dorado	——
Chase	Cottonw'd Falls	S. 29-Oc. 1
Chautauqua	Sedan	Oct. 6-9
Cherokee	Columbus	Sept. 7-10
Clay	Clay Centre	——
Coffey	Burlington	Sept. 13-17
Cowley	Winfield	Aug. 31-Sept. 3
Crawford	Girard	Sept. 28-Oct. 1
Davis	Junction City	Sept. 21-23
Decatur	Oberlin	Oct. 12-14
Dickinson	Abilene	Aug. 31-Sept. 3
Douglass	Lawrence	Sept. 6-11
Elk	Howard	Sept. 9-11
Ellis	Hays City	Oct. 5-8
Franklin	Ottawa	Sept. 27-Oct. 1
Harper	Harper	Sept. 14-17
Harvey	Newton	Sept. 20-23
Jefferson	Oskaloosa	Sept. 28 30
Jewell	Mankado	——
Johnson	Edgerton	Sept. 20-23
Lincoln	Lincoln	Sept. 21-24
Linn	Pleasanton	Sept. 14-17
Linn	Mound City	Sept. 21-24
Lyon	Emporia	Sept. 20-25
Marion	Peabody	Sept. 14-17
Marshall	Marysville	Sept. 21-24
McPherson	McPherson	Sept. 14-17
Miami	Paola	Sept. 21-24
Montgomery	Independence	Sept. 14-17
Montgomery	Liberty	Sept. 21-24
Morris	Council Grove	Sept 7-10
Nemaha	Seneca	Sept. 14-17
	Sabetha	Aug. 31-Sept. 4
Norton	Norton	Sept. 28-Oct. 1
Osage	Burlingame	——

Phillips	Phillipsburg	Sept. 21-24
Pottawatomie	Louisville	Sept. 21-24
Rawlins	Atwood	Sept. 30-Oct. 2
Rice	Lyons	Oct. 5-8
Riley	Manhattan	Aug. 31-Sept. 3
Rush	LaCrosse	Sept. 29-Oct. 1
Saline	Saline	Sept. 7-10
Sedgwick	Wishita	Sept. 20-24
Shawnee	Topeka	Sept. 28-Oct. 1
Sheridan	Hoxie	—
Smith	Smith Centre	Sept. 15-17
Sumner	Wellington	Sept. 7-11
Washington	Greenleaf	Sept. 28-30
Washington	Washington	Sept. 21-24

KANSAS DISTRICT.

La Cygne	La Cygne	Sept. 7-10
Marion	Marion	Sept. 28-Oct. 1
Pottawatomie	St. Marys	Sept. 28-Oct. 1

KENTUCKY.

Adair	Columbia	Aug. 17-20
Anderson	Lawrenceburgh	Aug.17-21
Barren	Glasgow	Sept. 29-Oct. 2
Bourbon	Paris	Sept. 7-11
Boyd	Ashland	Sept 3 —
Boyle	Danville	Sept. 8-6
Bracken	Germantown	Oct. 13 —
Campbell	Alexandria	Aug. 31-Sep. 4
Carlisle	Arlington	July 30-31
Crittenden	Marion	Sept. 28-Oct. 1
Daviess	Owensboro	Oct. 13-16
Fayette	Lexington	Aug. 31-Sept. 4
Hardin	Elizabethtown	Sept. 8-10
Henderson	Henderson	Aug. 25-28
Jefferson	Fern Creek	Aug. 25-26
Kenton	Covington	Aug. 24 —
Lawrence	Latonia	Aug. 24-28
Madison	Kirksville	July 23-24
Mason	Maysville	Sept. 18-21
Mercer	Harrodsburg	July 26-28
Mon	Kuttawa	Oct. 5-8
Muhlenburg	Greenville	Sept. 28-Oct. 2
Nelson	Bardstown	Sept. 7-10
Owen	New Liberty	Oct. 4-8
Pendleton	Falmouth	Aug. 31-Sept. 4
Pulaski	Somerset	Sept. 14-17
Shelby	Shelbyville	Aug. 24-27
Union	Uniontown	Aug. 17-20
Warren	Bowling Green	Sept. 1-4
Washington	Springfield	Aug. 31-Sept. 3

KENTUCKY DISTRICT.

Union	Germantown	Oct. 13-16

LOUISIANA.

Caddo	Shreveport	Oct. —

MAINE.

Androscoggin	Lewiston	Sept. 14-18
Aroostook	Presque	Sept. 14-16
Cumberland	Portland	Sept. 27-30
Franklin	Farmington	Oct. 12-14
Franklin	Philips	Oct. 5-7
Kennebec	Redfield	Sept. 28-30
Kennebec	Waterville	Sept. 21 —
Knox	Camden	Oct. 5-7
Lincoln	Damariscotta	Sept. 28 30
Oxford	South Paris	Sept. 28-30
Penobscot	Bangor	Aug. 31-Sept. 3
Penobscot	East Eddington	Sept. 23-44
Penobscot	Exeter	Sept. 28-30
Penobscot	Lee	Sept. 30-Oct. 1
Piscataquis	Foxcroft	Sept. 7-9
Somerset	Skowkegan	Sept. 21-23
Waldo	Belfast	Sept. 22-23
Washington	Jonesboro	Sept. 29-30
Washington	Machais	Sept. 22-23
York	Biddeford	Sept. 28-30
York	Cornish	Sept. 14-16

MARYLAND.

Baltimore	Baltimore	Sept. 13—
Cecil	Elkton	Oct. 5-8
Frederick	Frederick	Oct. 12-15
Harford	Bel Air	Oct. 12-15
Kent	Chestertown	Sept. 21-23
Talbot	Easton	Sept. 21-24
Washington	Hagerstown	Oct. 19-22

MASSACHUSETTS.

Barnstable	Barnstable	Sept. 28-29
Berkshire	North Adams	Sept. 21-23
Berkshire	Pittsfield	Sept. 14-15
Bristol	Taunton	Oct. 5-6
Dukes	West Tisbury	Oct. 5-7
Essex	Newburyport	Sept. 28-29
Franklin	Greenfield	Sept. 30-Oct. 1
Hampden	Chicopee	Sept 22-23
Hampden	Palmer	Sept. 14-15
Hampshire	Amherst	Sept. 23-24
Hampshire	W.Cummington	Sept. 28-29
Hillside	Cummington	Sept. 28-29
Hingham	Hingham	Sept. 28-29
Housatonic	Gt. Barrington	Sept. 29-30
Marshfield	Marshfield	Sept. 15-17
Middlesex	Framingham	Sept. 21-23
Middlesex	Lowell	Sept. 15-16
Plymouth	Bridgewater	Sept. 22-23
Worcester	Sturbridge	Sept. 16-17
Worcester	Athal Centre	Sept. 21-23
Worcester	Worcester	Sept. 23-24

MICHIGAN.

Alcona	Harrisville	Oct. 5-6
Allegan	Allegan	Sept. 28-30
Allegan	Plainwell	Sept. 28-Oct. 1
Alpena	Alpena	Oct. 7-9
Antrim	Bellaire	Sept. 28-30
Barry	Hastings	Sept. 28-Oct. 1
Bay	Bay City	Sept. 28-30
Benzie	Benzonia	Oct. 6-8
Berrien	Benton Harbor	Sept. 14-17
Berrien	Niles	Sept. 27-Oct. 1
Branch	Coldwater	Sept. 21-24
Calhoun	Marshall	Oct. 5-8
Cass	Dowagiac	Oct. 5-8
Cheboygan	Cheboygan	Oct. 6-8
Clinton	St. Johns	Oct. 5-8
Eaton	Charlotte	Sept. 21-24
Genesee	Flint	Sept. 2 -24
Grand Traverse	Taverse City	Sept. 28-Oct.1
Gratiot	Ithaca	Sept. 31-Oct. 3
Hillsdale	Litchfield	Oct. 5-8
Hillsdale	Hillsdale	Sept. 28-Oct. 1
Ingham	Lansing	Sept. 27-Oct. 1
Ionia	Hubbardston	Sept. 21-24
Isabella	Mt. Pleasant	Oct. 4-7
Jackson	Jackson	Sept. 13-17
Kalamazoo	Kalamazoo	Oct. 4-8
Kent	Grand Rapids	Sept. 20-25
Lake	Chase	Oct. 5-7
Lapeer	Hadley	Oct. 5- 7
Lapeer	Lapeer	Sept. 28-Oct. 1
Lenawee	Adrian	Sept. 21-24
Livingston	Brighton	Oct. 5-8
Macomb	Armada	Sept. 29-Oct. 1
Manistee	Bear Lake	Sept. 21-23
Marquette	Marquette	Sept. 22-30
Mason	Ludington	Sept. 21-24
Menominee	Menominee	Sept. 28-30
Midland	Midland	Sept. 28- Oct. 3
Missaukee	Lake City	Sept. 30-Oct.1
Monroe	Petersburg	Oct. 5-7
Montcalm	Greenville	Oct. 5-8
Oakland	Pontiac	Sept. 28-Oct. 1
Oakland	Rochester	Oct. 12-14
Oceana	Hart	Sept. 14-17
Ogemaw	West Branch	Sept. 15 —
Osceola	Evart	Sept. 30-Oct. 1
Otsego	Gaylord	Sept. 29-30
Ottawa	Berlin	Sept. 28- Oct. 1
Sanilac	Lexington	
St. Joseph	Centerville	Sept. 28-Oct. 1
Shiawassee	Owosso	Sept. 21-24
Tuscola	Vassar	Oct. 5-8
Van Buren	Paw Paw	Sept. 22-24
Washtenaw	Ypsilanti	Sept. 21-24
Wayne	Plymouth	Sept. 28-Oct. 1

MICHIGAN DISTRICT.

Branch	Centreville	Sept. 28-Oct. 1
Clinton	Ovid	Sept. 28-Oct. 1
Genesee	Fentonville	Oct. 5-8
Ingham	Stockbridge	Oct. 6-8
Ionia	Iona	Sept. 28-Oct. 1
Macomb	Romeo	Oct. 5-8
Monroe	Monroe	Sept. 13-17
Monroe	Monroe	Sept. 21-23
Oakland	Milford	Sept. 2 -24
Oakland & Wayne	Farmington	Sept. 21-24
Tuscola	Watrousville	Oct. 5-8
Union	Milford	Sept. 21-24
Van Buren	South Haven	Sept. 29-Oct. 1

MINNESOTA.

Anoka	Anoka	Sept. 15-18
Brown	New Ulm	Sept. 13-15
Blue Earth	Mankato	Sept. 21-24
Carver	Chaska	Sept. 23-25
Chicago	North Branch	Sept. 4 —
Chicago	Rush City	
Chippewa	Montevidio	Sept. 22-24
Clay	Glyndon	Sept. 29-Oct. 1
Dakota	Hastings	Sept. 23-25
Dakota	Farmington	Sept. 29-Oct. 1
Dodge	Kasson	Sept. 22-24
Faribault	Winnebago City	Sept. 16-18
Fillmore	Preston	Sept. 22-24
Goodhue	Red Wing	Sept. 28-30
Hennepin	Minneapolis	Aug.30-Sept. 1
Hubbard	Park Rapids	Sept. 15-16
Isanti	Cambridge	Sept. 22-24
Lac-qui-parle	Madison	Sept. 29-Oct. 1
Lyon	Marshall	Sept. 15-17
McLeod	Hutchinson	Sept. 21-23
Meeker	Litchfield	Sept. 7-10
Morrison	Little Falls	Sept. 16-18
Mower	Austin	Sept. 14-16
Nicolet	St. Peter	Sept. 10-11
Olmstead	Rochester	Sept. 13-18
Polk	Crookston	Sept. 23-26
Redwood	Redwood Falls	Sept. 22-24
Renville	Hector	Oct. —
Scott	Shakopee	Sept. 7-9
Sibly	Arlington	Sept. 13-14
Stearns	St. Cloud	Sept. 7-10
St. Louis	Duluth	Oct. 5-7
Swift	Benson	Sept. 28-29
Todd	Long Prairie	Sept. 21-23
Washington	Stillwater	Sept. 7-10
Watonwa	Madelia	Sept. —
Wright	Howard	Sept. 14-17
Yellow Medicine	Granite Falls	Sept. 14-16

MISSISSIPPI.

Hinds	Jackson	Oct. 13 —
Lincoln	Brookhaven	Oct. 26 —
Madison	Canton	
Monroe	Aberdeen	Oct. 15-19
Noxubee	Macon	Oct. 20—
Sharky	Rolling Fork	Oct. 18-22
Wilkinson	Near Woodville	Nov. 2-3

MISSOURI.

Atchison	Tarkio	Sept. 14-17
Audrain	Mexico	Aug. 10-14
Bales	Butler	Sept. 15-18
Boone	Columbia	Aug. 17-21
Buchanan	St. Joseph	Aug. 30-Sept. 3
Caldwell	Hamilton	Aug. 24-28
Callaway	Fulton	Aug. 24-28
Cape Girardeau	Cape Girardeau	Oct. 12—
Carroll	Tina	Sept. 21-24
Charlton	Keytesville	Oct. 6-9
Clark	Kahoka	Aug. 30-Sept. 3
Clay	Liberty	Sept. 4-9
Clinton	Plattsburg	Aug. 30—
Dallas	Buffalo	Sept. 15-18
Daviess	Jamesport	Sept. 7-10
Franklin	Washington	Sept. 16-18
Galloway	Fulton	Aug. 24-27
Gasconade	Hermann	Sept. 6—
Greene	Springfield	Sept. 27-30
Grundy	Trenton	Sept. 14-17
Harrison	Ridgeway	Aug. 31-Sept. 3
Holt	Maitland	Sept. 6-9
Jackson	Kansas City	Sept. 13-18
Jasper	Sarcoxie	Sept. 5-8
Jefferson	Dasota	Sept. 1-3
Johnson	Holden	Sept. 28-Oct. 2
Knox	Edina	Aug. 30-Sept. 2
La Clede	Lebanon	Oct. 13-16
Lafayette	Higginsville	Aug. 27-30
Lawrence	Pierce City	Sept. 21-24
Lewis	La Grange	Sept. 28-Oct. 2
Lewis	Williamstown	Sept. 13—
Lincoln	Troy	Aug. 23-26
Linn	Brookfield	Sept. 9—
Livingston	Avalon	Aug. 31-Sept. 3
Macon	Macon City	Aug.31-Sept. 3
Maries	Palmyra	Oct. 12-15
Marion	Palmyra	Oct. 13-17
Mercer	Princeton	Sept. 1—
Moniteau	California	Sept. 21-24
Moniteau	Tipton	Aug. 31 —
Monroe	Paris	Sept. 14-17
Montgomery	Montgomery	Sept. 14—
Nodaway	Marysville	Aug. 23-28
Pettis	Sedalia	Sept. 20-25
Phelps	St. James	Sept. 14-17
Platte	Platte City	Aug. 24-27
Putnam	Unionville	Sept. 15-19
Ralls	Hannibal	Aug. 24—
Randolph	Moberly	Sept. 7-11
St. Clair	Appleton City	Sept. 7-11
St. Francis	Farmington	Sept. 7-12
St. Louis	St. Louis	Oct. 4 —
Saline	Marshall	Aug. 30-Sept. 4
Scotland	Memphis	Sept. 6-11
Shelby	Shelbyville	Aug. 23-26
Sullivan	Milan	Sept. 25-28
Union	Newark	Sept. 13-18
Vernon	Nevada	Sept. 21-26

MISSOURI DISTRICT.

Jackson	Kansas	Oct. 23-30
Knox	Newark	Sept. 13 —
Lewis	La Belle	Sept. 21 —
Lewis	Canton	Aug. 6-10
Saline	Brownsville	Aug. 16-19
Shelby	Shelbina	Sept. 7 —

MONTANA.

Lewis & Clarke	Helena	Aug. 23-27
Yellowstone	Billings	

NEBRASKA.

Adams	Hastings	Sept. 28-Oct. 1
Antelope	Neligh	Sept. 28-30
Boone	Albion	Oct. 5-8
Brown	Long Pine	Sept. 28-Oct. 2
Buffalo	Kearney	Oct. 5-8
Butler	David City	Sept. 21-24
Cass	Plattsmouth	Sept. 21-24
Cedar	Hartington	Sept. 14-16
Clay	Clay Centre	Oct. 5-8
Colfax	Schuyler	Sept. 7-10
Custer	Broken Bow	Sept. 21-23
Dixon	Ponca	Sept. 21-24
Dodge	Fremont	Sept. 22-24
Douglas	Omaha	Sept. 6-11
Fairmount	Fairmount	Aug. 31-Sept. 3
Fillmore	Fairmount	Aug. 31-Sept. 3
Franklin	Franklin	Sept. 8-10
Friend	Friend	Sept. 6-9
Gage	Beatrice	Sept. 7-10
Garfield	Gordon	Oct. 6-8
Hall	Grand Island	Sept.28-Oct.1
Hitchcock	Culberton	Sept. 30-Oct. 2
Hamilton	Aurora	Sept. 7-10
Holt	O'Neill	Sept. 28-Oct. 1
Howard	St. Paul	Sept. 7-10
Jefferson	Fairburg	Aug.31-Sept. 3
Johnson	Tecumseh	Sept. 21-24
Kearney	Minden	Sept. 28-30
Knox	Creighton	Sept. 21-24
Lancaster	Lincoln	Sept. 10-17
Madison	Madison	Sept. 22-25
Merrick	Central City	Sept. 6-10
Nemaka	Auburn	Sept. 6-9
Nuckolls	Nelson	Sept. 21-24
Otoe	Syracuse	Sept. 6-9
Platte	Columbus	Sept. 28-Oct. 1
Polk	Osceola	Sept. 7-10
Richardson	Salem	Sept. 28-Oct. 2
Saline	Friend	Sept. 6-9
Sarpy	Papillion	Sept. 21-24
Seward	Seward	Sept. 29-Oct. 2
Sheridan	Gordon	Oct. 6-8
Sioux	Gordon	Oct. 6-8
Thayer	Hebron	Sept. 22-24
Valley	Ord Valley	Oct. 5-7
Wayne	Wayne	Sept. 14-17
Webster	Red Cloud	Oct. 5-8
York	York	Sept. 6-9

NEBRASKA DISTRICT.

Cass	Weeping Water	Sept. 6-9
Cass	Weeping Water	Sept. 21-25
Gage	Wymore	Sept. 21-24
Richardson	Falls City	Sept. 6-11

NEVADA.

Washoe	Reno	Oct. 4-9

NEW HAMPSHIRE.

Belknap	Laconia	Sept. 7-10
Coos	Colebrook	Sept. 1-2
Hillsboro	Manchester	Sept. 14-16
New Haven	Meriden	Sept. 21-24

NEW JERSEY.

Atlantic	Egg Harbor City	Sept.23-26
Burlington	Moorestown	Sept. 21-26
Burlington	Mt. Holly	Oct. 11-16
Cumberland	Bridgeton	Sept. 8-9
Essex	Waverly	Sept. 13-17
Hunterdon	Flemington	Sept. 21-23
Mercer	Trenton	Oct. 5-8
Monmouth	Freehold	Sept. 7-9
Salem	Woodstown	Sept. 15-21
Somerset	Somerville	Sept. 28-30
Sussex	Newton	Oct. 5-8

NEW MEXICO.

Bernalillo	Albuquerque	Sept.28-Oct.1

NEW YORK.

Alleghany	Angelica	Sept. 7-10
Alleghany	Cuba	Sept. 7-10
Broome	Whitney Point	Sept. 7-11
Cattaraugus	Randolph	Sept. 20-21
Chautauqua	Jamestown	Aug. 31-Sept. 3
Chemung	Elmira	Sept. 26—
Chenango	Norwich	Sept. 20-22
Clinton	Plattsburgh	Oct. 21-22
Columbia	Hudson	Sept. 14-16
Delaware	Delhi	Sept. 14-17
Dutchess	Wash'n Hollow	Sep.28.Oc.1
Essex	Westport	Sept. 14-16
Franklin	Malone	Sept. 28-Oct. 3
Fulton	Johnstown	Sept. 7-9
Genesee	Batavia	Sept. 28-25
Greene	Cairo	Sept. 1-3
Jefferson	Carthage	Sept. 7-9
Lewis	Lowville	Sept. 14-17
Livingston	Geneseo	Sept. 6-7
Monroe	Rochester	Sept. 28-Oct. 1
Montgomery	Fonda	Sept. 14-16
Niagara	Lockport	Sept. 25-25
Onelda	Rome	Sept. 20-24
Onondaga	Syracuse	Oct. 3—
Ontario	Canandaigua	Oct. 12-14
Orleans	Allison	Sept. 23-25
Oswego	Mexico	Sept. 14-16
Otsego	Cooperstown	Sept. 20-22
Putnam	Carmel	Sept. 21-24
Queens	Mineola	Sept. 21-24
Rensselaer	Troy	Sept. 16-18
Rockland	Spring Valley	Sept. 28-30
St. Lawrence	Canton	Sept. 14-16
Saratoga	Ballston Springs	Sept. 7-10
Schoharie	Schoharie	Sept. 28-30
Seneca	Waterloo	Sept. 28-30
Steuben	Bath	Sept. 28-Oct. 1
Suffolk	Riverhead	Sept. 28-30
Sullivan	Monticello	Sept. 21-28
Tioga	Owego	Sept. 7-9
Tompkins	Ithaca	Sept. 14-17
Ulster	Ellenville	Sept. 21—
Washington	Fort Edward	Sept. 14-17
Wayne	Lyons	Sept. 16-18
Westchester	White Plains	Sept. 27-Oct.2
Wyoming	Perry	Sept. 30-Oct. 1

NORTH CAROLINA.

Cabarras	Poplar Tent	Aug. 11-12
Cumberland	Fayetteville	Nov. 9-13
Edgecombe	Rocky Mount	Nov. 10-12
Edgecombe	Tarborough	Nov. 2-5
Halifax	Weldon	Oct. 19-22
Mecklenburgh	Charlotte	Nov. 2-5
Pasquotauk	Elizabeth City	Nov. 3-5
Wake	Raleigh	Oct. 26 29
Wayne	Goldsboro	Nov. 15-19

OHIO.

Adams	Winchester	Sept. 28-Oct. 1
Allen	Lima	Sept. 21-24
Auglaize	Wapakoneta	Sept. 28-Oct.1
Augiaize	Waynesfield	Aug. 31-Sept. 3
Ashtabula	Jefferson	Sept. 21-24
Athens	Athens	Oct. 6-8
Belmont	St. Clairsville	Sept. 1-3
Brown	Ripley	Aug. 24-27
Butler	Hamilton	Oct. 4-8
Carroll	Carrollton	Oct. 5-8
Champaign	Urbana	Aug. 24-27
Clarke	Springfield	Aug. 24-27
Clermont	Boston	Sept. 7-10
Clermont	Owenaville	Sept. 7 10
Clinton	Wilmington	Sept. 7-10
Columbiana	New Lisbon	Sept. 28-Oct. 1
Coshocton	Coshocton	Oct. 12-15
Crawford	Bucyrus	Sept. 21-24
Cuyahoga	Chagrin F'ls	Aug.30-Sept. 3
Darke	Greenville	Sept. 13-17
Defiance	Defiance	Sept. 28-Oct. 1
Delaware	Delaware	Sept. 14-17
Erie	Sandusky	Sept. 21-24
Fairfield	Lancaster	Oct. 12-16
Fayette	Washington C.H.	Aug. 24-27
Franklin	Columbus	Aug. 30-Sept. 3
Fulton	Wauseon	Sept. 21-24
Gallia	Gallipolis	Sept. 16-18
Geauga	Burton	Sept. 13-16
Greene	Xenia	Sept. 8-11
Guernsey	Washington	Sept. 22-24
Hamilton	Carthage	Aug. 17-20
Hancock	Findlay	Sept. 29-Oct. 2
Hardin	Kenton	Sept. 7-10
Harrison	Cadiz	Sept. 28-Oct. 1
Henry	Napoleon	Sept. 14-17
Highland	Hillsboro	Aug. 8-6
Hocking	Logan	Oct. 12-15
Holmes	Millersburg	Sept. 28-Oct. 1
Huron	New London	Aug. 17-20
Jefferson	Smithfield	Sept. 22-24
Knox	Mt. Vernon	Sept. 28-Oct. 1
Lake	Painsville	Sept. 21-24
Lawrence	Ironton	Sept. 15-17
Licking	Newark	Sept. 28-Oct. 1
Logan	Bellefontaine	Sep.28-Oct. 1
Lorain	Elyria	Sept. 28-Oct. 1
Lucas	Toledo	Sept. 6-11
Mahoning	Canfield	Oct. 5-7
Mahoning	Youngstown	Sept. 14-17
Marion	Marion	Oct. 5-8
Medina	Medina	Sept. 14-16
Mercer	Celina	Aug. 30-Sept. 3
Miami	Troy	Sept. 28-Oct. 1
Monroe	Woodfield	Sept. 22-24
Montgomery	Dayton	Sept. 27-Oct. 1
Morgan	McConnellsville	Sept. 14-17
Morrow	Mt. Gilead	Oct. 5-8
Muskingum	Zanesville	Oct. 5-9
Noble	Sarahsville	Sept. 8-10
Ottawa	Port Clinton	Sept. 13-17
Paulding	Paulding	Sept. 21-24
Perry	New Lex'gton	S. 28-Oct. 1
Pickaway	Stringtown	Sept. 7-10
Portage	Ravenna	Sept. 21-24
Preble	Eaton	Sept. 27-Oct. 1
Putnam	Ottawa	Oct. 5-9
Richland	Mansfield	Sept. 28-Oct. 1
Ross	Chillicothe	Aug. 10-13
Sandusky	Fremont	Sept. 28-Oct. 1
Scioto	Portsmouth	Sept. 20-24
Seneca	Tiffin	Sept. 28-Oct. 1
Shelby	Sidney	Sept. 21-24
Stark	Canton	Sept. 29-Oct. 1
Summit	Akron	Oct. 5-8
Trumbull	Warren	Sept. 9-10
Tuscarawas	Canal Dover	Oct. 5-8
Union	Marysville	Sept. 28-Oct. 1
Van Wert	Van Wert	Sept. 7-10
Vinton	McArthur	Sept. 29-Oct. 1
Warren	Lebanon	Sept. 21-24
Washington	Marietta	Sept. 21-24
Wayne	Orrville	Oct. 12-15
Williams	Bryan	Sept. 27-Oct. 1
Wood	Tontogany	Sept. 28-Oct. 1
Wyandotte	Up'r Sandusky	Spt.28-Oct.1

OHIO DISTRICT.

Ashtabula	Conneaut	Sept. 15-17
Belmont	Barnesville	Aug. 24-27
Brown	Canfield	Oct. 5-7
Brown	Georgetown	Oct. 4-7
Champaign	Mechanicsburg	Sept. 7-10
Clinton	Blanchester	Sept. 15-17
Clinton	Sabina	Aug. 24-27
Defiance	Hicksville	Sept. 21-24
Greene	Jamestown	Aug. 17-20
Hardin	Ada	Sept. 14-17
Harrison	Smyrna	Sept. 14-16
Highland	Greenfield	Oct. 12-15
Huron	Norwalk	Sept. 14-17
Licking	Hartford	Sept. 7-10
Licking	Pataskala	Aug. 24-27
Lorain	Wellington	Aug. 24-27
Perry	Somerset	Oct. 20-22
Portage	Deerfield	Sept. 25-25
Portage	Garrettsville	Sept. 6-9
Richland	Shelby	Sept. 14-17
Ross	Adelphia	Sept. 7-10
Sandusky	Clyde	Oct. 5-8
Seneca	Fostoria	Sept. 21-25
Stark	Marlboro	Oct. 7-9
Tuscarawas	Urichsville	Sept. 28-Oct. 1
Warren	Montpelier	Sept. 21-24
Wood	Bowl'g Green	Sept.28-Oc. 1
Wood	Grand Rapids	Sept. 21-24

OREGON.

Union	La Grande	Oct. 4-10
Marion	Salem	Sept. 13-18
Yamhill	McMinnville	Sept. 6-8

PENNSYLVANIA.

Adams	Gettysburg	Sept. 21-23
Armstrong	Kittanning	Sept. 7-10
Beaver	Beaver	Sept. 21-23
Berks	Reading	Sept. 21-24
Blair	Hollidaysburg	Sept. 14-18
Bradford	Towanda	Sept. 28-30
Bucks	Doylestown	Oct. 5-8
Butler	Butler	Sept. 14-16
Carbon	Lehighton	Oct. 21-24
Chester	Oxford	Sept. 29-Oct. 1
Chester	West Chester	Oct. 28-25
Clarion	Clarion	Sept. 28-Oct. 1
Clearfield	DuBois	Sept. 7-10
Columbia	Berwick	Sept. 28-Oct. 1
Columbia	Bloomsburg	Oct. 13-16
Crawford	Coneutville	Sept. 29-Oct. 1
Crawford	Woodcock	Sept. 21-24
Cumberland	Carlisle	Sep. 28-Oct. 1
Dauphin	Gratz	Sept. 21-24
Erie	Erie	Sept. 21-24
Erie	Wattsburg	Oct. 7-9
Fayette	Uniontown	Oct. 5-8
Greene	Carmichaels	Oct. 7-8
Huntingdon	Huntingdon	Oct. 5-8
Indiana	Indiana	Oct. 5-8
Jefferson	Brookville	Sept. 14-17
Lackawanna	Scranton	Sept. 14-17
Lancaster	Lancaster, Aug. 30-Sept. 14	
Lehigh	Allentown	Sept. 27-Oct. 1
Luzerne	Wyoming	Sept. 21-24
Mc Kean	Port Allegheny	Sept. 6-9
Mercer	Mercer	Sept. 8-10
Mercer	Stoneboro	Sept. 28-30
Northampton	Easton	Sept. 14-17
Perry	Newport	Sept. 22-24
Philadelphia	Philadelphia	Sept. 6-18
Potter	Coudersport	Sept. 28-30
Sullivan	Dushore	Oct. 6-8
Susquehanna	Montrose	Sept. 21-22
Tioga	Wellsboro	Sept. 21-23
Union	Lewisburgh	Sept. 21-24
Venango	Franklin	Sept. 7-10
Warren	Sugar Grove	Sept. 14-16
Warren	Warren	Sept. 7-9
Washington	Burgettstown	Oct. 5-7
Wayne	Honesdale	Sept. 7-9
Westmoreland	Greensburg	Oct. 12-15
Wyoming	Finkhannock	Sept. 8-10
York	York	Oct. 5-8
York	Hanover	Sept. 28-Oct. 1

PENNSYLVANIA DISTRICT.

Armstrong	Parker's L'ng	Sept. 21-24
Bradford	Troy	Sept. 14-17
Butler	Harmony	Sept. 21-24
Butler	Millerstown	Sept. 1-3
Crawford	Cochranton	Sept. 15-17
Crawford	Titusville	Sept. 21-24
Dauphin	Lykens	Sept. 21-24
Erie	Corry	Sept. 28-Oct. 1
Susquehanna	Great Bend	Sept. 30-Oct. 2
Susquehanna	Harford	Sept. 28-29
Tioga	Mansfield	Sept. 28-Oct. 1
Washington	Washington	Sept. 14-17
Washington	Millsboro	Sept. 28-30

RHODE ISLAND.

Newport	Aquaduct Park	Oct. 5-7
Providence	Providence	Sept. 20-24
Washington	W. Kingston	Sept. 14-16

SOUTH CAROLINA.

Chester	Chester	Nov. 1-25
Darlington	Darlington	Oct. 28-30
Laurens	Laurens C. H.	Nov. 9—
Marion	Marion	Nov. —
Wabash	Asbury Chapel	Sept. 2-3
Newberry	Pomaria	Nov. 9-12
Richland	Columbia	Nov. 9-12

TENNESSEE.

DeKalb	Alexandria	Sept. 23-25
Dyer	Dyersburg	
Giles	Pulaski	Sept. 28-Oct. 1
Greene	Greeneville	Sept. 22-24
Hardin	Savannah	October —
Hereford	Murfreesboro	Nov. 9-12
Jefferson	Chestnut Grove	Oct. 6-8
Monroe	Sweet Water	Sept. 24-27
Montgomery	Clarksville	Aug. 24-25
Obion	Union City	Oct. 6 —
Overton	Livingston	Oct. 7-9
Rutherford	Murfreesboro	Sept. 7-12
Sullivan	Bristol	Sept. 22-25
White	Sparta	Aug. 31-Sept. 2
White	Sparta	Sept. 29-Oct. 2
Wilson	Lebanon	Sept. 30-Oct. 2

TEXAS.

Archer	Archer City	Dec. 21—
Dallas	Dallas	Oct. 26-Nov. 10
Duval	San Diego	July 28
Parker	Weatherford	Nov. 10-13
Tarrant	Fort Worth	Aug. 9-11
Wharton	Wharton	May 20-22

UTAH.

Beaver	Beaver	Sept. 29—
Cache	Logan	Oct. —

VERMONT.

Caledonia	St. Johnsburg	Sept. —
Lamoille	Morristown	Sept. 28-30
Rutland	Rutland	Sept. 14-16
Franklin	St. Albans	Sept. 8-11

VIRGINIA.

Accomack	Eastville	Aug. 31-Sept. 3
Accomack	Keller Sta	Aug. 31—
Albermarle	Scottsville	Oct. 6-8
Augusta	Staunton	Oct. 12-15
Botetourt	Fincastle	Sept. 28-Oct. 1
Campbell	Lynchburgh	Oct. 11-15
Culpepper	Culpepper C. H.	Sept. 7-9
Dickinson	Spankersville	Sept. 5 —
Fairfax	Church Falls	Sept. 8-15
Frederick	Winchester	Oct. 12-15
Henrico	Richmond	Oct. 20-22
Loudoun	Leesburgh	Sept. 14 16
Shenandoah	Woodstock	Oct. 5-7
Southampton	Franklin	Oct. 26-29

WASHINGTON TERRITORY.

Spokane	Spokane Falls	Sept. 1-4
Walla Walla	Walla Walla	Oct. 18-24

WEST VIRGINIA.

Hancock	Anderson	Sept. 28-Oct. 1
Harrison	Clarksburg	Sept. 14-17
Henrico	Richmond	Oct. 23—
Jackson	Ravenswood	Aug. 31-Sept. 2
Jackson	Jackson C. H.	Sept. 7-9
Mason	Point Pleasant	Aug. 24-27
Monroe	Alderson	Sept. 28-Oct. 1
Ohio	Wheeling	Sept. 6-11
Ripley	Jackson C. H.	Sept. 7-9
Tyler	Middlebourn	Sept. 2-3

WISCONSIN.

Adams	Friendship	Sept. 28-30
Barron	Chetek	Sept. 14-16
Chippewa	Chippewa Falls	Sept. 14-17
Clark	Neilsville	Sept. 28-30
Dane	Madison	Sept. 20-24
Dunn	Menomonee	Sept. 6-8
Fond du Lac	Fond du Lac	Sept. 7-10
Grant	Lancaster	Sept. 22-24
Green	Monroe	Sept. 8-11
Iowa	Dodgeville	Sept. 14-17
Jackson	B. R. Falls	Sept. 15-17
Jefferson	Watertown	Sept. 12-17
Juneau	Mauston	Sept. 28-30
Kewaunee	Kewaunee	Oct. 4-6
La Crosse	West Salem	Sept. 27-30
Langlade	Phlox	July 31 —
Manitowoc	Manitowoc	Sept. 27-30
Marathon	Wausau	Sept. 30-Oct. 2
Mercer	Princeton	Aug. 31-Sept. 3
Monroe	Tomah	Sept. 28-30
Outagamie	Hortonville	Sept. 28-Oct. 1
Ozaukee	Saukville	Oct. 5-6
Pepin	Durand	Sept. 1 —
Pierce	Ellsworth	Sept. 22-24
Portage	Amherst	Sept. 21 23
Racine	Burlington	Sept. 21-24
Racine	Racine	Aug. 20-Sept. 3
Richland	Ithaca	Sept. 15-17
Rock	Janesville	Sept. 14-17
Sauk	Baraboo	Sept. 28-30
St. Croix	Hudson	Sept. 5-17
Shawanaw	Shewanaw	Sept. 28-30
Sheboygan	Sheboygan Falls	Sept. 21-24
Taylor	Medford	Sept. 28-30
Trempaleau	Galesville	Sept. 8-10
Vernon	Viroqua	Sept. 15-17
Walworth	Elkhorn	Sept. 28-Oct. 1
Washington	W. Bend	Sept. 29-Oct. 1
Waukesha	Waukesha	Sept. 7-10
Waushara	Wautoma	Sept. 22-24
Winnebago	Oshkosh	Sept. 13-17
Wood	Gr'd Rapids	Sept. 28-Oct. 1

WISCONSIN DISTRICT.

Jefferson	Jefferson	Sept. 22-24
Portage	Steven's Point	Sept. 7-10
Sheboygan	Sheboygan Falls	Sept. 14-17
Vernon	Viroqua	Sept. 22-24
Walworth	Elkhorn	Sept. 21-24

WYOMING.

Johnson	Big Horn City	Sept. 15-17
Laramie	Cheyenne	Sept. 14-17

CANADA.

Adelaide	Strathroy, Ont	Oct. 7-8
Addington	Newburgh, Ont.	Oct. 2—
Ascot	Sherbrooke	Sept. 28-Oct. 2
Bruce	Walkerton	Oct. 5-8
Cramahe	Castleton, Ont.	Oct. 5—
Durham	Pt. Hope	Oct. 5-7
Elgin	Springfield, Ont.	Sept. 24-25
Elgin	Vienna	Oct. 5—
Frontenac	Kingston	Sept. 28-Oct. 1
Genville	Merrickville	Sept. 23-24
Glengary	Alexandria, Ont.	Sept. 22-23
Grant	Brantford, Ont	Oct. 6-9
Huron	Seaforth, Ont.	Sept. 27-28
Huron	Brussels, Ont.	Oct. 5-6
Kent	Chatham, Ont.	Oct. 6-8
Kingston	Kingston	Sept. 28-Oct. 1
Lambton	Arkona, Ont.	Oct. 5-6
Lanark	Carleton Place, Ont.	Nov. 2
Lennox	Napanee, Ont.	Oct. 5-6
Lincoln	Niagara T'n.	Sept. 30-Oct. 1
Lincoln	London, E.	Sept. 27-Oct. 2
Lincoln	Milford, P.E.I.	Oct. 10 —
Lincoln	Smithville	Oct. 12-13
Marquette	Gladstone, Man.	Oct. 12—
Mt. Durham	Bowmanville.	Sept. 30-Oct. 1
Norfolk	Port Dover, Ont.	Oct. 9 —
Ontario	Port Perry	Oct. 5-8
Oxford	Ingersoll, Ont.	Oct. 4-6
Oxford	Tilsonburg	Sept. 28-29
Prince	Summerside, P.E.I.	Sept. 30
Provincial Exhib.	Guelph, Ont.	Sept. 20-25
Queens	Charlottet'n, P.E.I.	Oct. 6-8
Simcoe	Cookstown,	Sept. 30-Oct. 1
South Leeds	Newboro, Ont.	Sept. 28-29
St. Johns	St. Johns, Que.	Sept. 16 —
Victoria	Lindsay	Sept. 28-30
Wentworth	Hamilton	Sept. 28-Oct. 1
York	Woodbridge, Ont.	Oct. 22-23

NO FAIRS.

We have received special reports from 495 counties, stating that no Fairs will be held this year. These counties are distributed as follows in the various States and Territories:

Alabama	18	Illinois	13	Minnesota	13	Pennsylvania	10
Arizona	1	Indiana	15	Mississippi	28	South Carolina	12
Arkansas	33	Indian Territory	2	Missouri	20	Tennessee	36
California	4	Iowa	9	Montana	1	Texas	36
Colorado	15	Kansas	11	Nebraska	6	Utah	7
Dakota	13	Kentucky	33	Nevada	2	Virginia	17
Florida	5	Louisiana	19	New Hampshire	1	West Virginia	22
Georgia	53	Maryland	8	New Jersey	5	Wisconsin	7
Idaho	1	Michigan	5	North Carolina	23	Wyoming	1

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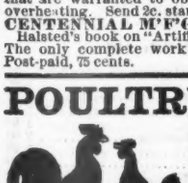

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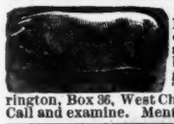

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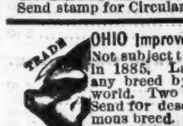

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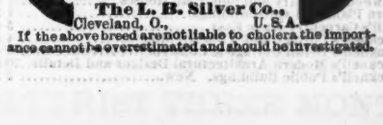

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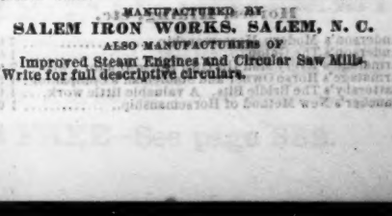

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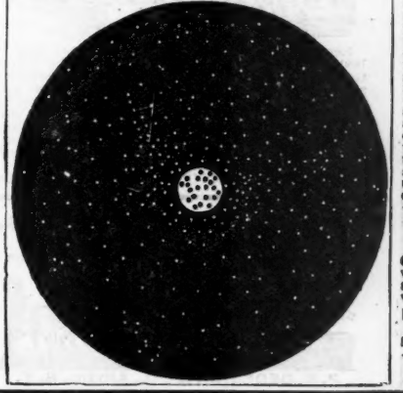

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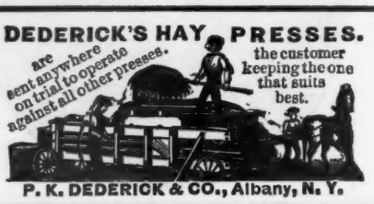

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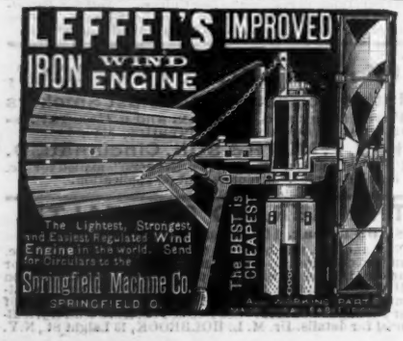
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